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CONTENTS.

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AN ADDRESS on Some Mediastinal Affections. Delivered at the Medical Graduates' College and Policlinic on Jan. 30th, 1911, by PERCY KIDD, M.D.Oxon., F.R.C.P. Lond., Physician to the London Hospital; Consulting Physician to the Hospital for Consumption and Diseases of the Chest, Brompton, and to King Edward VII. Sanatorium..... 561

HUNTERIAN LECTURE on the Immunity Reaction in Diagnosis, especially of Tuberculosis and Syphilis. Delivered in the Theatre of the Royal College of Surgeons of England on Feb. 6th and 8th, 1911, by W. D'ESTE EMERY, M.D., B.Sc. Lond., M.R.C.S. Eng., Pathologist and Lecturer on Pathology and Bacteriology at King's College Hospital.—Lecture II. 564

ORIGINAL ARTICLES.

The Mechanical Treatment of Spinal Caries. By H. J. GAUVAIN, M.A., B.C.Cantab., M.R.C.S. Eng., L.R.C.P. Lond., Medical Superintendent, Lord Mayor Treloar Cripples' Hospital and College, Alton, Hants.—(*Illustrated*) 568

The Education of the Deaf: its Present State in England, with Suggestions as to its Future Modifications and Development. By MACLEOD YEARSLEY, F.R.C.S. Eng., Senior Surgeon to the Royal Ear Hospital; Medical Inspector of London County Council Deaf Schools; Lecturer to the London Training Colleges for Teachers of the Deaf, &c.—II. 574

A Case of Suprarenal Apoplexy. By RUPERT WATERHOUSE, M.D. Lond., M.R.C.P. Lond., Pathologist and Assistant Physician, Royal United Hospital, Bath 577

Cranial Asymmetry Due to Postural Causes. By HUBERT ARMSTRONG, M.D. Vict. & Liverp., Honorary Assistant Physician, Liverpool Infirmary for Children.—(*Illustrated*) 578

A Case of Rodent Ulcer of the Thigh. By HERBERT E. FRIEND, M.R.C.S. Eng., L.R.C.P. Lond., and T. CRISP ENGLISH, M.B., B.S. Lond., F.R.C.S. Eng. 579

Notes on a Case of Retention of Urine. By GEORGE W. BURY, M.B., Ch.B. Vict., Resident Surgical Officer, North Staffordshire Infirmary..... 580

Infantile Diarrhœa. By WILLIAM TIBBLES, M.D. Chicago (Hon. Caus.), L.R.C.P. Edin., M.R.C.S. Eng., &c. 580

Bone-Setting and Its General Principles. By FRANK ROMER, M.R.C.S. Eng., L.R.C.P. Lond. 603

MEDICAL SOCIETIES.

ROYAL SOCIETY OF MEDICINE:
PATHOLOGICAL SECTION:—Asphyxia under Chloroform.—Lamarckism and Callosities.—Action of Pro- and Anti-thyroid Preparations 582
SECTION FOR THE STUDY OF DISEASE IN CHILDREN:—Exhibition of Cases and Specimens.—The Oculomotor Type of Polioencephalitis 583
OTOLOGICAL SECTION:—Malignant Disease of Lateral Wall of Naso-Pharynx.—Report and Exhibition of Cases 584
SOCIETY OF TROPICAL MEDICINE AND HYGIENE: Malaria 585
CLINICAL SOCIETY OF MANCHESTER: Treatment of Some Diseases of the Lymphatic Glands and Spleen 585
MEDICO-CHIRURGICAL SOCIETY OF GLASGOW: Treatment of Phthisis Pulmonalis.—Exhibition of Cases 586
LEEDS & WEST RIDING MEDICO-CHIRURGICAL SOCIETY: Acute Aspects of Appendicitis in Children..... 586
SHEFFIELD MEDICO-CHIRURGICAL SOCIETY: Posterior and Lateral Sclerosis (Ataxic Paraplegia)..... 587
BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY: Kinematographic Microscopy 587

REVIEWS AND NOTICES OF BOOKS.

Manual of Medicine. By Thomas Kirkpatrick Monro, M.A., M.D. Glasg. Third Edition 587
Gynecological Therapeutics. By S. Jervois Aarons, M.D. Edin., M.R.C.P. Lond. 588
Handbuch der Vergleichenden Physiologie. Herausgegeben von Hans Winterstein 588
Hook-worm Disease: Etiology, Pathology, Diagnosis, Prognosis, Proyhylaxis, and Treatment. By George Dock, A.M., M.D., and Charles C. Bass, M.D. 589
Argentina: Past and Present. By W. H. Koebel..... 590
Andreas Vesalius: The Reformer of Anatomy. By James Moores Ball, M.D..... 590
Logic for the Million. Edited by T. Sharper Knowlson 591
Darwin and the Humanities. By James Mark Baldwin, D.Sc., LL.D. Second Edition 591
Forbidden Fruit for Young Men. By Lieut.-Col. Seton Churchill. Eighth Edition... 592
The Valley of Achor. By Mrs. Philip Champion de Crespigny 592
North of England Clinical Journal. Vol. I. 592
Canadian Medical Association Journal. Vol. I. 592
Aesculape. Vol. I. 592
Répertoire de Médecine Internationale. Vol. I. 592

NEW INVENTIONS.

Twin Scissors for Sclerotomy (Herbert's Operation).—(*Illustrated*) 593
An Improved Ethyl Chloride Inhaler 593

LEADING ARTICLES.

THE IMMUNITY REACTION IN DIAGNOSIS 594
PSYCHOLOGICAL MEDICINE AND SOCIAL PROBLEMS 595
THOMAS *v.* BARKER..... 596

ANNOTATIONS.

Nursing in the Fever Hospitals of the Metropolitan Asylums Board 598
Wholesome Bread 598
Why Surgeons Become Surgeons 598
Hardware in the Stomach 599
The Central Association for the Aid of Discharged Convicts.. 599
The Care of Sick Sailors in Germany..... 600
A History of the Cavendish Laboratory 600
Diphtheria of the Vulva in a Child 600
"Influenza" among Cats 601
Bilharzia in Egypt 601
Concerning Prescriptions..... 601
Sleeping in the Open Air..... 602
The Fundamental Basis of the Vocation of Medicine..... 602

VITAL STATISTICS:
Health of English Towns..... 610
Health of Scotch Towns 611
Health of Irish Towns 611
Vital Statistics of London during January, 1911..... 611
Analysis of Sickness and Mortality Statistics in London during January, 1910 612

LOOKING BACK.
(From THE LANCET, Saturday, March 2nd, 1833.)
St. Thomas's Hospital: Glanders in the Human Subject 610

SPECIAL ARTICLES.

Thomas *v.* Barker: Mr. Justice Darling's Summing-up 604
The Metropolitan Water-supply 606
The Health of the Army in 1909.—II..... 607
Medicine in the Encyclopædia Britannica.—II. 609
The Services 613
Experiments in Sewer Ventilation at Leicester.—(*Illustrated*) 618
Manchester..... 620
Liverpool..... 621
Bristol and the Western Counties 621
Scotland..... 623
Ireland..... 623
Paris 624
Vienna 625
Canada 626
Medical Inspection and Treatment of London School Children 627

CORRESPONDENCE.

Charles Bell and the Motor and Sensory Functions of Spinal Nerves (Prof. A. D. Waller)... 614
The Treatment of Malignant Stricture of the Œsophagus, with Especial Reference to Intubation and to Radium (Dr. William Hill) 615
The Lantern Test for Colour Blindness (Dr. F. W. Edridge-Green) 616
The Philadelphia Idea as to Medical Teaching (Dr. H. A. Hare) 616
Diseases of Elephants' Tusks (Dr. Hugh S. Stennus) 617
The late Dr. James Edmunds and Cæsarean Section (Dr. Herbert R. Spencer) 617
Admission of Cases of Measles and Whooping-cough to the Hospitals of the Metropolitan Asylums Board (Mr. T. Duncombe Mann) 617
The Treatment of a Case of Pernicious Anæmia (Mr. Edward T. Jones) 617
Enceinte 635

MEDICAL NEWS.

Medical Sickness and Accident Society..... 563
The West Herts Hospital and the Medical Treatment of School Children 563
Workmen's Compensation Act, 1906 573
International Congress of Pathology (Turin) 597
United Services Medical Society 627
Edinburgh University Club ... 628
Pass-list of the Society of Apothecaries of London 629
Foreign University Intelligence 629
Metropolitan Police Surgeons' Association..... 629
The New King's College Hospital 629
University of Sheffield..... 630
The Edward Medal..... 630
Central Midwives Board 630
Royal Dental Hospital..... 630
Royal Society of Arts 630
Literary Intelligence..... 630
British Medical Benevolent Fund..... 630
The Medical Inspection and Treatment of School Children 630
The Local Government Board and the Medical Treatment of Old Age Pensioners 630
The Royal Sanitary Institute... 630
The Devon County Memorial to the late King 631
Donations and Bequests 631
Carnegie Entomological Research Scholars 631
West Sussex Sanitary Authorities..... 631

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics 631
House of Commons 631

Books, &c., received 633
Appointments 633
Vacancies 634
Births, Marriages, and Deaths... 634
Notes, Short Comments, and Answers to Correspondents... 635
Medical Diary 636
Acknowledgments of Communications received 638

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

COVER

PAGE

BAILLIERE, TINDALL & COX:—
Bidwell .... Intestinal Surgery 1
Campbell .. Treatment 1
" .... Aids to Pathology 1
Knox .... Military Sanitation, &c. 1
Moser .... Aids to Bacteriology 1
Ward .... Hæmatological Charts.. 1

BALE, SONS & DANIELSSON:—
Worth .... Equist 1

CHURCHILL, J. & A.:—
Bigg .... Spinal Curvatures 1
Harry .... Vicious Circles in Disease 1
Warden .... Paris Medical School .. 1

FROWDE AND HODDER & STOUGHTON:—
McCann .... Cancer of the Womb .. 1

GLAISHER:—
Savill .... Neurasthenia 1
" .... Lectures on Hysteria .. 1

LEWIS:—
Campbell .... Headache 1
" .... Flushing, &c. 1
" .... Differences in Nervous Organisation of Man and Woman 1
Tilley .... Diseases of the Nose, &c. 1

MEDICAL PUBLISHING CO.:—
Lane .... Cleft Palate & Hare Lip 1
" .... Treatment of Fractures 1

PAGE

NISBET & CO.:—
Lane .... Chronic Constipation .. 1

SAUNDERS COMPANY:—
Cabot .... Differential Diagnosis . 1
Fenwick .... Dyspepsia 1

WRIGHT & SONS (Bristol):—
Mummery .. Diseases of the Colon .. 1

MEDICAL LIBRARIES, &c.:—
Newton & Co.:—
List of Electro Medical Apparatus 1

ASH, SONS & CO.:—
Hewitt .... Nitrous Oxide, &c. 6

BAILLIERE, TINDALL & COX:—
Aarvas .... Gynæcological Diagnosis 5
Brand & Keith .... Clinical Memoranda .. 5
Brown .... Physiological Principles in Treatment 5
Campbell .... Treatment 5
Gardner .... Surgical Anæsthesia .. 5
Lambkin .... Syphilis 5
Latham .... Pulmonary Tuberculosis 5
Ramsay .... Eye Diseases 5
Sawyer .... Physical Signs 5
Spicer .... Medical Education 5
Turner .... Radium 5
Walters .... Sanatorium Treatment of Tuberculosis 5
Williams .... Minor Maladies 5
Younger .... Insanity in Everyday Practice 5

CHURCHILL, J. & A.:—
Crippe .... Ovariotomy, &c. 6

PAGE

GRIFFIN & CO.:—
Caird & Cathcart .. Surgical Handbook 8

HILTON & CO.:—
Ghosh .... Materia Medica 6

LEWIS:—
Allen .... Vaccine Therapy, &c. .. 41
Binnie .... Manual of Operative Surgery 46
Kenwood .... Public Health Laboratory Work 46
Lewers .... Diseases of Women 6
" .... Cancer of the Uterus .. 6
Martindale & Westcott .. Extra Pharmacopœia .. 6
Martindale & Westcott .. Salvarsan 8
Parkes & Kenwood .. Hygiene & Public Health 46
Rawling .... Landmarks, &c. 46
Smith, E. .... Some Common Remedies 46
Stoddart .... The Mind, &c. 46
Wyllie .... Meningitis, &c. 46
" .... Tumours of Cerebellum 48
Woakes .... Deafness, &c. 46

LONGMANS, GREEN & CO.:—
Bennett, Sir W. .... Massage & Movements in Recent Fractures .. 6

MACMILLAN & CO.:—
Ballance .... Surgery of the Brain .. 8

NISBET & CO.:—
Bennett, Sir Wm. .... Injuries, &c., of the Knee-joint 8

PAGE

REBMAN:—
Baldwin .... Individual and Society. 7
Jennings .... Manual of Plague 7
Kurella .... Cesare Lombroso 7
Mechanism of Life 7
Woodruff .... Expansion of Races 7

SAUNDERS COMPANY:—
Cabot .... Differential Diagnosis.. 3
Mayo, &c. .. Collected Papers 3

SMITH, ELDER & CO.:—
Ellis .... Demonstrations of Anatomy 7
Finlayson's Clinical Manual for the Study of Medical Cases 7
Gamble .... Animal Life 7
Juler .... Ophthalmic Science, &c. 7
Lawson .... Diseases, &c., of the Eye 7
Leftwich .... Index of Symptoms 7
Marshall & Hurst .... Practical Zoology 7
Playfair .... Science and Practice of Midwifery 7
Schäfer .... Practical Histology 7
Treves, Sir F. Uganda for a Holiday.. 7

TAYLOR, GARNETT, EVANS & CO.:—
The Mendel Journal 8

MEDICAL LIBRARIES, &c.:—
Baker—Book Bargains 8
Beasley & Ketley—Stammering 8
Behnke—Stammering 8
Matthews Bros.—
Wood: Application of Trusses 8
Schnelle—Stammering 8
Third Appendix to Squire's Pocket Companion 37

OFFICIAL AND GENERAL ANNOUNCEMENTS

COVER

OFFICIAL NOTICES:—
Royal Society of Medicine i

HEALTH RESORTS, BATHS, &c.:—
Aix-les-Bains, Savoy ii

APPOINTMENTS VACANT:—
Aberdeen Royal Infirmary 82
Ancoats Hospital, Manchester 83
Borough of East Ham Education Committee 84
Cancer Hospital 82
City of London Hospital for Diseases of the Chest 82
County Asylum, Cambridge 84
County of Fife 82
Cumberland Infirmary, Carlisle 81
Derby Co. Boro' Education Committee 82
Dumfries & Galloway Royal Infirmary 82
East London Hospital for Children, &c. 81
Essex County Hospital, Colchester 82
Glamorgan County Council 83
Hastings, St. Leonards, &c. Hospital .. 85
Horton Infirmary, Banbury 82
Hospital for Sick Children, Great Ormond-street 84
Jersey General Dispensary & Infirmary 82
Jessop Hospital for Women, Sheffield 83
King Edward VII. Memorial Sanatorium for Shropshire 81
London Fever Hospital 81
Metropolitan Hospital, Kingsland-rd.. 82
Newport and Monmouthshire Hosp.. 84
Parish of Birmingham 85
Poplar Hospital for Accidents 82
Royal Ear Hospital, Soho 81
Royal Eye and Ear Hosp., Bradford.. 85
Royal Free Hosp., Gray's Inn-road .. 84
Royal Hospital for Diseases of the Chest, City-road 83
Royal Infirmary, Edinburgh 82
Royal Infirmary, Hull 84
Royal Portsmouth Hospital 81
Royal Southern Hospital, Liverpool.. 81
St. Thomas's Hospital 84
Salford Royal Hospital 82
Salop Infirmary, Shrewsbury 83
South Devon and East Cornwall Hospital, Plymouth 82
Stockport Infirmary 81
Street Tuberculin Dispensary 84
Sussex County Hospital, Brighton .. 82
Swansea General and Eye Hospital .. 85
Tower Hamlets Dispensary, Stepney.. 81
University of Sheffield 81
Walsall and District Hospital 82
Warneford, Leamington, &c., General Hospital 84
West Berks United Districts 83
Western General Dispensary 81
West London Hospital, Hammersmith 82
Worcester County and City Asylum .. 82
Wrexham, Borough of 83
Wrexham Rural District Council 83

ASSISTANCIES, MEDICAL 84

ASYLUMS HOMES, &c.:—
Ashwood House, Kingswinford 75
Association of Medical Men Receiving Resident Patients 8
Barnsley Hall, Bromsgrove 80
Barnwood House Hospital 76
Bishopsbourne Nursing Home, Broadstairs 77
Bishopstone House, Bedford 75
Buntingford House Retreat, Buntingford 78
Camberwell House, Peckham-road 75
Capel Lodge Retreat, Folkestone 74
Chesalon Royal 75
Clarence Lodge, Clapham-park 76
Coppice, The, Nottingham 76
Crooksbury Sanatorium, Surrey 79
Croydon Mental Hospital 76
Dairymple House, Rickmansworth 74
Dartmoor Sanatorium 79
David Lewis Colony, Alderley Edge .. 80
Dinsdale Park, Darlington 76
Fairford Retreat, Gloucestershire 78
Ghyllwoods 78
Grove House, Church Stretton 76
Grove, The, Catton, Norwich 78
Haydock Lodge, Newton-le-Willows.. 77
Heigham Hall, Norwich 76
Home for Epileptics, Maghull 80
Inverness Sanatorium, Dairsie 77
Invernith Lodge Retreat, Colinsburgh 78
Kingsdown House, Box 75
Lady Superintendent, Streatham 81
Littleton Hall, Brentwood 81
Loch-Houra, Chingford 80
London Fever Hospital, Islington 75
London Open-Air Sanatorium, Wokingham 79
Malling Place, Kent 76
Manna Mead, Blackheath 80
Melbourne House, Leicester 74
Middleton Hall, Co. Durham 75
Mont House, Tamworth 76
27, New Cavendish-street, W. 81
Newmains Retreat, Lanarkshire 78
Nordrach-on-Dee, Banchory 79
Nordrach-upon-Mendip Sanatorium .. 79
Northumberland House, Finsbury-pk.. 77
Northwoods House, Westerbourne 77
Norwood Sanatorium, Ltd. 78
No. 161, L.O., Strand 81
No. 205, L.O., Strand 81
No. 305, L.O. Strand 81
Osea Island, Heybridge 74
Peckham House 77
Plas yn-Dinas, Merionethshire 78
Plympton House, South Devon 76
Portsmouth Corporation Mental Hos.. 76
Ringwood & Fope, Hazelmere 81
Roberts, Golder's Green 80
Rudgwick Sanatorium, Sussex 81
Ruebury Sanatorium, Northallerton.. 80
St. Andrew's Hospital, Northampton.. 76
St. Luke's Hospital, E.C. 75
Sanatorium Clavadel 80
Shaftesbury House, Formby-by-the-Sea 77
Springfield House Private Asylum, Bedford 76
Stocker, Craven-street 81

ASYLUMS—(Continued).
Stretton House, Church Stretton 76
The Grange, Rotherham 76
Vale of Clwyd Sanatorium 79
Warneford Asylum, Oxford 75
Wilberforce, Torquay 74
Wye House, Buxton 76
Yarrow Convalescent Home, Broadstairs 77

FINANCIAL, &c.—
Birkbeck Bank 73
Equitable Reversionary Interest Soc.. 73

HEALTH RESORTS, BATHS, &c.:—
Aberystwyth, the Biarritz of Wales .. 80
Alexandra Therapeutic Institute 74
Badgastein 80
Bex-les-Bains 80
Leysin, Switzerland 80
Peebles Hotel Hydropathic 74
Smedley's, Matlock 74

HOMES WANTED:—
Pains, Glasgow 81

HOTELS:—
Tunbridge Wells—
The Wellington Hotel 80
White Hart Hotel, Margate 80

HOUSE & ESTATE AGENTS:—
Architects, Balham 86
Arnott, Swan, & Walker, Newcastle-on-Tyne 86
Bedford & Co., Wigmore-street 86
Dryland, Basinghall-street 86
Field, Whitechapel 86
117, Holloway-road 86
International Private Hotel, Cleveland-square 86
Jaggard, Bushey 86
Ley Clark, Wimpole-street 86
Mrs. A., Walthamstow 86
No 260 L.O., Strand 86
Owner, Gravesend 86
Walton, Mancheste- 86
CONSULTING-ROOMS:—
H. W. M., Nicholas-lane 87
No. 136, L.O., Strand 87
No. 292 L.O., Strand 87
No. 293 L.O., Strand 87
No. 295 L.O., Strand 87
No. 306, L.O., Strand 87

LIFE & FIRE ASSURANCES:—
National Provident Institution 73
Provident 73

MASSAGE:—
London School of Massage, &c. 73

MEDICAL ACCOUNTANTS, &c.:—
Turner 85

MEDICAL AGENTS:—
Blundell & Rigby 89
Fieldhall, Limited 91
Manchester Medical Agency 89
Manchester Medical Association 89
Medical Agency 91
Moore & Co. 91
Needes, Herbert 86
Needes, J. C. 90
Peacock & Hadley 89
Reynolds & Branson 90
Scholastic, Clerical, &c., Assoc. 92
Turner 88
Whyte & Co. 89

MEDICAL SCHOOLS:—
(LONDON.)
West London Post-Graduate College.. 72

NURSING INSTITUTES:—
General Nursing Association 74
Hospital for Sick Children, Great Ormond-street 73
Leeds Trained Nurses' Institution 74
London Nurses' Association 74
Male Nurses Temperance Co-operation 73
Mental Nurses' Co-operation 73
National Hos. Male Nurses' Assoc.. 73
Nurses' Co-operation, Portland-place.. 74
St. John's House 73
St. Luke's Hospital, E.C. 73
Temperance Male and Female Nurses' Co-operation 73
Temperance Male Nurses' Co-operation 73
The Retreat, York 75

OFFICIAL NOTICES:—
City of London Lying in Hospital 71
Clapham Maternity Hospital 72
College of Preceptors 72
Hospital for Sick Children, Great Ormond-street 72
London Post-Graduate Association .. 71
London School of Clinical Medicine .. 71
London Throat Hospital 71
Medical Graduates' College, &c. 71
Middlesex Hospital 72
Queen Charlotte's Lying-in Hospital.. 71
Royal Eye Hospital, Southwark 71
Royal Naval Medical Service 72
Throat Hospital, Golden-square 71
University of Cambridge 72
York-road General Lying-in Hospital, Lambeth 71

PARTNERSHIPS & PRACTICES 85

RAILWAY & STEAMSHIP CO.'S:—
New Zealand Shipping Co. 75

SCHOOLS, PREPARATORY, &c.:—
Oral School for Deaf Children, Fitzroy-square 72

TUTORS & LECTURERS:—
Austin .... 72 | No. 565, L.O. .. 72
Behnke .... 72 | Pennington's
Gemmell .... 72 | Med. Classes 72
Knight .... 73 | Weymouth .. 71 72
No. 409, L.O. .. 72

For Index to Trade and Miscellaneous Advertisements see page 4.

An Address
ON
SOME MEDIASTINAL AFFECTIONS.

Delivered at the Medical Graduates' College and Policlinic on Jan. 30th, 1911,

BY PERCY KIDD, M.D. OXON., F.R.C.P. LOND.,

PHYSICIAN TO THE LONDON HOSPITAL; CONSULTING PHYSICIAN TO THE HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON, AND TO KING EDWARD VII. SANATORIUM.

GENTLEMEN,—It is not my intention on the present occasion to attempt to deal with the general topic of mediastinal tumours. I wish first to describe briefly certain unusual examples of mediastinal disease, and secondly to discuss some points in the clinical symptoms and diagnosis of tuberculous mediastinal glands.

I.—UNCOMMON CASES OF MEDIASTINAL DISEASE.

CASE 1. *Substernal thyroid tumour simulating a mediastinal new growth; operation; recovery.*—The patient was admitted into the London Hospital in February, 1906, as a case of mediastinal tumour. For some four years he had suffered from difficulty of breathing. Treatment had given some relief until two weeks before admission, when his breathing became much worse. Two months previously to admission a lump in the neck was first noticed by his medical attendant. The patient was a dark man, of Hebrew race, with an anxious expression, but not obviously wasted. There was slight stridor, mainly inspiratory. The superficial veins of the neck and chest were distended. On coughing a large swelling appeared in the neck above the clavicles, more on the left side, suddenly disappearing when coughing ceased. No lump was felt behind the clavicles. The lungs were hyper-resonant on percussion and the breath sounds were universally weak. There was no dulness over the sternum. The heart was normal. The larynx was healthy; no paralysis of vocal cords, and no dysphagia.

The long history and the absence of wasting seemed to exclude malignant disease, though the evidence of mediastinal pressure was very clear. The diagnosis suggested was substernal thyroid gland. The swelling above the clavicles on coughing was attributed to emphysematous bulging of the apices of the lungs. My colleague, Mr. James Sherren, examined the case, and pointed out that the swelling which appeared in the neck on coughing was dull to percussion, and he suggested that it was due to a moveable substernal thyroid tumour. Radiograms showed a fusiform shadow behind the sternum running up towards the neck. Mr. Hurry Fenwick subsequently saw the patient and agreed to attempt the removal of the tumour.

On March 5th, under chloroform, an incision was made along the upper border of the left clavicle in its outer half. From the inner end of this incision another was carried up and out to the anterior border of the trapezius. The veins were very large and bled freely and had to be ligatured. The platysma and omohyoid (posterior belly) were cut through and a dissection made on to the sheath of the subclavian vessels. No signs of the lump were found. The patient was made to cough and the lump was found to the inner side of the wound. The incision along the line of the clavicle was carried further and more vessels were caught and ligatured, first the muscular head and then the sternal head of the sterno-mastoid muscle had to be cut through. The lump was then found and exposed. A retractor was put on to hold back the soft structures and the swelling was grasped by tenaculum forceps and pulled out. On puncture yellow cystic fluid escaped. The lump, now smaller, was pulled on and eventually shelled out of its bed. It was much larger than at first suspected and was about the size of a large William pear. There were no adhesions. The tumour was continuous with the isthmus of the thyroid gland. The junction was cut through, the vessels ligatured, and the surface canterised. The cavity occupied by the tumour reached down into the thorax behind the arch of the aorta. A drainage-tube was inserted in the cavity. The tumour proved to be an encapsulated adenoma. The wound healed fairly well, but some suppuration took place.

The patient was discharged on March 30th. When I saw him a few weeks later the wound had healed and no abnormal physical signs could be detected. The patient was completely relieved of all his symptoms. I have given the full surgical notes of Mr. Hurry Fenwick's operation as the case is an unusual and instructive one, and the results were highly satisfactory.

CASE 2. *Mediastinal cyst (? dermoid).*—The patient, who was 20 years of age, had suffered from a dry cough from January to Easter, 1891, when he was suddenly seized with sharp pain in the left side and shortness of breath. Signs of pleural effusion developed and he was tapped, a quart of clear yellow fluid being withdrawn. A week later he was aspirated again, the result being a tumblerful of turbid fluid with flakes floating in it. Since then he had dragging pain on raising the left arm, and dyspnœa. In August, 1891, a swelling appeared in the upper part of the subcostal angle. I saw the patient at the Brompton Hospital as an out-patient in October, and he was admitted under my care through the kindness of my colleague, Dr. F. T. Roberts. Physical examination showed dulness and signs of fluid on the left side from the second space in front and the spine of the scapula behind to the base. The heart was displaced to the right of the sternum. On the right side in front from the clavicle to the third space there was a vertical strip of dulness extending from the middle line of the sternum outwards to the right for 1½ inches. Immediately below the ensiform cartilage there was a rounded, slightly pulsating elastic swelling. The signs were somewhat puzzling. For although the evidence of fluid in the left pleura was unmistakeable, the patch of dulness to the right of the upper part of the sternum and the epigastric tumour were difficult to explain. The possibility of an encysted mediastinal empyema was suggested.

On Oct. 15th the patient was aspirated by Mr. R. J. Godlee in the eighth space in the scapular line, and 65 ounces of dark blood-stained fluid were drawn off. Microscopically red blood corpuscles, leucocytes, and spherical epithelial cells with large nuclei and granular débris were found. The dulness on the left side diminished, but the epigastric swelling and the patch of dulness to the right of the sternum persisted. I will now quote Mr. Godlee's account of the subsequent history of the case.[1]

> On Nov. 28th an incision was made into the epigastric swelling which was becoming more tense, and a cavity was opened containing a considerable quantity (6 or 7 ounces) of brown purulent fluid something like that previously extracted from the side, floating in which were numerous small rounded masses of a brilliant chrome-yellow pultaceous material, looking like the yellow palm oil used for lubricating the wheels of railway carriages. The cavity extended upwards behind the sternum, and on a subsequent occasion I endeavoured to discover its upper limit by making a hole through the sternum. The finger, however, was found to be amongst the large vessels in the superior mediastinum and I did not venture to go any further. An elaborate analysis of this fatty material was made by Dr. Halliburton, but it threw no light on the case. We never found any of the usual contents of dermoid cysts and I do not therefore know whether the case should be placed here [i.e., chapter Dermoid Cysts]; but I am at a loss for any other explanation of it. The yellow material continued to escape for a considerable time and ultimately the sinus closed. It remained healed for some time, but subsequently a small ulcer formed at the top of the sternum, which, after discharging for some months, finally healed

I saw the patient myself in 1897—i.e., about five years after the operation—when he was in excellent health. There was a small scar just above the right sterno-clavicular joint, and deep scars over the lower end of the sternum and epigastrium in the site of the two operations. With the exception of slight deficiency of movement on the left side of the chest there were no abnormal physical signs.

CASE 3. *Mediastinal abscess perforating the trachea and œsophagus and causing subcutaneous emphysema and cellulitis.*—The patient, a man aged 37 years, was admitted into the London Hospital on Oct. 4th, 1900. He had been taken ill seven days previously with a shivering fit and sweating, and shortly afterwards he had noticed a red swelling in the neck. The swelling had been much worse a few days previously to admission, diminishing suddenly after spitting up much phlegm. On admission the patient was cyanosed, and the skin of the lower part of the neck was congested and boggy, and emphysematous crackling was detected. The pulse was 138, the respirations were 42, and the temperature was 100·8° F. There was dulness to percussion over the lower

[1] Fowler and Godlee: Diseases of the Lungs, p. 698.

two-thirds of the left lung, and tubular breathing at the base. On the right side scattered rhonchi. Diagnosis: Cellulitis of neck; pneumonia. The patient was bled 10 ounces, and an incision was made in his neck, when some pus and a few bubbles of air escaped. Temporary relief was obtained, but he sank and died on Oct. 6th, two days after admission.

At the necropsy the left pleura was found to contain 1½ pints of brownish turbid fluid, the lung being collapsed and covered with recent greenish lymph. Both lungs contained numerous miliary abscesses. In the œsophagus opposite the bifurcation of the trachea there was a flat oval fibroma measuring 1×⅝ inch, and just to the left of the tumour a small smooth-edged opening led into an abscess cavity at the bifurcation of the trachea. This abscess had extended upwards into the neck and into the left pleura and communicated by a small opening with the trachea. There was also acute recent pericarditis. The disease appeared to have originated in the sub-tracheal lymphatic glands, whether as the result of tuberculosis or some other cause could not be determined. No tuberculous focus was discovered anywhere.

The following two cases, which I will only briefly outline, illustrate the way in which mediastinal growths may be masked by other conditions.

CASE 4. *Mediastinal growth masked by pericardial effusion.*—A labourer, aged 61 years, had been ailing for four weeks with loss of appetite followed by dyspnœa and weakness. There were physical signs of pericardial effusion. He died 15 days after admission.

At the post-mortem examination the mediastinal glands in front of the trachea and bronchi were found to be infiltrated with a firm whitish-yellow growth forming a mass of about the size of a duck's egg, not occluding or narrowing either bronchus, trachea, or œsophagus. There was a small nodule of growth in the upper lobe of the left lung. The pericardium was roughened with lymph and contained 1½ pints of clear fluid but no growth.

CASE 5. *Mediastinal growth masked by pleural effusion.*—A man, aged 50 years, had been ailing for five months with loss of flesh, pain in the right side, and swelling of the legs. There were physical signs of a small pleural effusion on the right side which steadily increased, and the patient died four days after admission.

Post mortem a large pleural effusion was found on the right side and turbid fluid with flakes of lymph. The trachea and the root of each lung were embedded in a large whitish growth extending widely into the lower lobe of the right lung. The œsophagus and large veins were not involved.

II.—TUBERCULOUS DISEASE OF THE BRONCHIAL GLANDS.

It is well known that the mediastinal glands may be markedly caseous and considerably enlarged without exciting any suspicion of the actual state of things. This mistake is less likely to occur in children than adults owing to the greater tendency in the former to the development of bronchial obstruction depending on the more yielding character of their bronchial walls. Nevertheless, in children also extensive tuberculous disease of the bronchial glands is very apt to pass unrecognised, even though careful search for its presence be instituted.

The mediastinal glands may be divided into two main groups—anterior and posterior. The former lie in front of the trachea, the posterior group is situated beneath the fork of the trachea and around the main bronchi. The latter group is more often affected by tuberculosis. When the glandular swelling is considerable symptoms of mediastinal tumour may be presented with characteristic pressure signs. If the pre-tracheal glands be chiefly involved the superficial thoracic veins may be enlarged and dulness on percussion may be elicited over the manubrium sterni. More often, perhaps, the pressure is not confined to the trachea, but is exerted also on one or other bronchus, giving rise to weakening of the vesicular murmur over the corresponding lung. In some cases slight stridor is met with. It may be said that enlargement of the pre-tracheal glands gives more definite physical signs and is easier to recognise.

In the case of the posterior or sub-tracheal glands very considerable enlargement may exist without betraying its presence by any obtrusive signs. It is commonly asserted that dulness to percussion may be detected in these circumstances in the interscapular region. But from the position of the glands lying beneath the bifurcation of the trachea and in front of the body of the third dorsal vertebra, this seems very unlikely unless the vertebral border of the lung be involved also, or unless the glands around the main bronchi be enormously enlarged. According to my experience, dulness in this situation is never found in tuberculous adenitis when the lung is unaffected. Among the occasional symptoms mention must be made of a paroxysmal cough and alterations in the frequency of the pulse, whether slowing or acceleration, attributed to pressure on the vagus. Paralysis of the vocal cords is said to occur, but I have never met with it, or perhaps I should say I have never been able to establish its dependence on tuberculous bronchial glands. But not much reliance can be placed on these symptoms for purposes of diagnosis. The same may be said of Dr. Eustace Smith's sign, a continuous humming murmur heard over the manubrium when the head is strongly retracted. I will now give a few examples illustrative of these points.

CASE 6. *Tuberculosis of mediastinal glands followed by pleurisy with effusion; recovery for some years; death from tuberculous meningitis.*—A boy, aged 5 years, had suffered from tuberculous disease of the knee-joint from the age of 3 years. Amputation had to be performed a year later, from which he recovered well and his general health improved greatly. But soon afterwards he began to wheeze and his breathing was noisy at times. On examining him I found slight stridor, the percussion note was slightly impaired at the apex of the right lung, especially front, and the breath sounds were much weaker on this side. No adventitious sounds could be heard. Diagnosis: Tuberculosis of mediastinal glands compressing right bronchus. Some months later a large pleural effusion developed on the right side, from which he made an excellent recovery, the fluid becoming absorbed in less than a month. The signs at the right apex gradually cleared up in the course of two or three years, leaving nothing beyond deficient expansion and broncho-vesicular breathing. After regaining fairly good health for some years he died at the age of 18 from tuberculous meningitis. No necropsy was made.

CASE 7. *Tuberculosis of mediastinal glands compressing the right bronchus; recovery.*—A girl, aged 8 years, a cousin of the last patient, a few months after an attack of whooping-cough began to suffer from a peculiar wheezing and occasional cough. About the same time she had an obscure febrile attack resembling rheumatism. The following winter she had bronchitis. When I saw her she was pale and her face was rather puffy, but she was plump and well nourished. The superficial veins over the upper thorax were enlarged. Percussion at the right supraspinous fossa was slightly impaired, the breath sounds at the right apex were diminished, and sibilant rhonchi were heard at both apices. Diagnosis: Tuberculosis of bronchial glands compressing right bronchus. She was sent to Brighton for the winter and made an excellent recovery. All abnormal signs gradually disappeared and she grew up into a healthy woman, and is now 27 years of age.

In these two cases (Cases 6 and 7) the signs of obstruction of the right bronchus without any symptoms or signs of pulmonary disease pointed strongly to the bronchial glands as the source of the trouble.

CASE 8. *Tuberculosis of mediastinal glands involving the lung by direct infection through the bronchi.*—The patient, a boy aged 7 years, was admitted to hospital on Nov. 1st, 1905. Three weeks previously he had come home from school complaining of pain in the head and of feeling "burning hot." Vomiting and diarrhœa developed and he became languid and miserable. Five months previously he had had scarlet fever, since when he had never been well. On admission the boy was found to be pale and wasted and the temperature was irregularly remittent—103°-99° F. There was occasional cough. Physical examination showed a patch of dulness over the upper third of the sternum merging into another limited area of dulness, just to the right of the sternum, about 2 inches in width, between the fourth and sixth ribs. Over the dull areas prolonged expiration was heard, but no adventitious sounds anywhere. Diagnosis: Tuberculosis of anterior mediastinal glands involving the middle lobe of the right lung. The opsonic index to tuberculosis was estimated on four occasions by Dr. G. T. Western in November and varied from 1·0 to 1·19. The case progressed slowly downwards, the chief features being remittent pyrexia, loss of flesh, and slight cough.

Signs of consolidation gradually spread up towards the apex of the right lung, râles and rhonchi appeared over both lungs, and the patient died from tuberculous meningitis on June 10th, 1906.

At the necropsy large caseous glands were found in the anterior mediastinum and beneath the fork of the trachea. The right bronchus was perforated by the caseous glands in two of its divisions—the branch to the middle and the branch to the lower lobe. The middle lobe of the right lung was converted into a large caseous mass. In the upper lobe there were a limited fibrosis and a small cavity. Both lungs were studded with miliary tubercles. There was tuberculous meningitis.

Perforation of the bronchi by caseous bronchial glands is not an uncommon event, and explains the anomalous distribution of the pulmonary lesions in this and similar cases.

It would be easy to cite from post-mortem records examples of tuberculous bronchial glands undetected during life. I will merely give as an illustration one case that proved extremely deceptive.

CASE 9. *Tuberculous abscess of bronchial glands; broncho-pneumonia simulating acute tuberculosis; death from septicæmia.*—A boy, aged 7 years, had been ailing for 17 days with headache, malaise, cough, and wasting. One other child had died at home three weeks ago with similar symptoms. On admission the boy was only partly conscious, groaning frequently, and coughing occasionally. The respirations were 44 and the temperature was 101°–103° F. At the base of the left lung there were dulness and tubular breathing, and crepitations were scattered over both lungs. Diagnosis: acute tuberculosis. The patient died in a few days.

At the necropsy enlarged caseous glands were found in the posterior mediastinum, and in the fork of the trachea was an abscess with foul stinking pus tracking along the right bronchus, but not communicating with the air passages or œsophagus. The left pleura contained one pint of serous fluid, the lung being collapsed. In the right lung were patches of broncho-pneumonia, but no tubercles. There were a few small caseous nodules in the liver and the kidneys.

Cases like the preceding testify to the inadequacy of our standard methods of diagnosis. For while we can recognise with a fair degree of accuracy gross lesions of the mediastinal glands, moderate enlargements of these glands frequently escape us altogether. At the last annual meeting of the British Medical Association Professor d'Espine of Geneva read a paper on The Early Diagnosis of Tuberculous Bronchial Adenopathy in the Child. In this paper he claimed that the presence of enlarged bronchial glands could be determined by auscultation over the spinous processes of the seventh cervical and upper two or three dorsal vertebræ. Pectoriloquy, or a bronchial quality of respiration, in this situation was held to be a certain sign of enlarged sub-tracheal glands. Pectoriloquy is stated to be an earlier sign than bronchial breathing. A definite vertebral dulness on percussion over the same area coincides invariably with a loud bronchophony, and is pathognomonic of a large glandular mass uniting the trachea with the vertebræ.

If these statements can be verified obviously we should have received a most valuable addition to our means of diagnosis. It was surprising to find from the report of the meeting[2] that these statements were allowed to pass without further discussion.

In his work on "Auscultation and Percussion" (second edition, p. 126) Dr. S. J. Gee writes as follows: "Bronchial breathing, like bronchophony, is heard about the seventh cervical, and three or four upper dorsal vertebræ in a great number of healthy persons, especially in those that are thin, in women, and children." Dr. Gee cites Laennec in support of this statement. I remember Dr. Gee making use of this fact in teaching auscultation, and pointing out how auscultation of the spine in this region provides us with a standard of what is bronchial breathing, which is very useful to students and beginners when in doubt as to the character of the breath sounds heard over the lungs. I thought this fact was generally admitted. I have repeatedly verified it myself and I have often adopted Dr. Gee's plan in teaching students. But after reading Professor d'Espine's remarks I determined to investigate the point anew. Accordingly, with the help of my house physician, Mr. J. R. Dick, I examined 51 patients consecutively with reference to this matter. The only patients excluded were such as had consolidation of the lung of any kind, pleural effusion, or any evidence of tuberculous or other glandular disease in any district of the body. Of these 51 patients, 33 showed bronchial breathing or pectoriloquy over the seventh cervical and upper dorsal spines, usually the first and second. In 22 cases both bronchial breathing and pectoriloquy were present; in 11 cases either bronchial breathing or pectoriloquy alone. In 18 cases the results were uncertain or negative. Most of the patients that gave positive results were spare or thin, but not all, a notable exception being a man weighing over 15 stones, the subject of a cerebral tumour. Among the positive cases 19 were male and 14 female. Age: under 10 years, 7 cases; 10 years and over, 26 cases. In one infant 11 weeks of age suffering from disseminated broncho-pneumonia we found marked bronchial breathing over the seventh cervical and first dorsal spine but nowhere else. The necropsy showed scattered foci of broncho-pneumonia and trifling enlargement of the bronchial glands; in fact, the glands were scarcely larger than usual in healthy infants. These facts appear to recommend an attitude of caution with respect to Professor d'Espine's views. I feel persuaded myself that Dr. Gee's statement is true and that we may expect to find bronchial breathing and pectoriloquy over the upper dorsal spines in many healthy people.

In some cases radiography gives valuable assistance, but it is not possible to secure expert examination in all cases. In infants under 2 or 3 years of age von Pirquet's cutaneous tuberculin test is a very useful addition to other means of diagnosis. But in older children and adults it has a more limited value owing to the great frequency of quiescent or arrested tuberculous lesions in the lungs and other parts after the second or third years of life.

I cannot now enter into the question of treatment further than to urge the very great importance of recognising the curability of tuberculous lymphatic glands in the chest as in other parts, and, in the case of children especially, of insisting on prolonged residence at the seaside.

[2] Brit. Med. Jour., Oct. 15th, 1910.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the executive committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on Feb. 17th, 1911. There were present: Dr. F. de Havilland Hall (in the chair), Dr. H. A. Sansom, Dr. Frederick S. Palmer, Dr. M. G. Biggs, Dr. W. Knowsley Sibley, Mr. Frederick Wallace, Dr. F. C. Martley, Dr. M. Greenwood, Dr. J. W. Hunt, Mr. E. Bartlett, Dr. J. Brindley-James, Mr. H. P. Symonds, Mr. J. F. Colyer, Dr. F. J. Allan, Mr. F. S. Edwards, and Dr. J. B. Ball. A large increase has taken place in the number of new entrants, and the amount disbursed in sickness pay has been under the average and remarkably small for the season of the year. Prospectuses and all further particulars on application to Mr. F. Addiscott, secretary, Medical Sickness and Accident Society, 33, Chancery-lane, London, W.C.

THE WEST HERTS HOSPITAL AND THE MEDICAL TREATMENT OF SCHOOL CHILDREN.—At a meeting of the Hemel Hempstead Education Committee held recently the clerk reported that he had, by direction of the committee, interviewed the committee of the West Herts Hospital as to the treatment of school children found on medical inspection to require treatment, and discussed the matter with them. The great difficulty, so far as the hospital was concerned, was that although it might be prepared to treat suitable cases referred to it, and to accept payment for the same from the school authority, still it would be unfair to the honorary medical staff, in that the hospital would benefit to the amount of the subscription from the school authority, and the medical staff would be called upon to exercise the charity by attending these children, for treating whom they would get nothing. The education committee had set very expensive machinery in motion to discover the defects of these children, and they were strongly of opinion that some scheme of payment should emanate from the Board of Education. A member of the education committee said that it was a waste of time to discover the defects in school children unless those defects when discovered were remedied, adding that the Board of Education had distinctly promised a grant in aid. The clerk was instructed to write to the Board on the matter.

Hunterian Lecture

ON

THE IMMUNITY REACTION IN DIAGNOSIS, ESPECIALLY OF TUBERCULOSIS AND SYPHILIS.

Delivered in the Theatre of the Royal College of Surgeons of England on Feb. 6th and 8th, 1911,

BY W. D'ESTE EMERY, M.D., B.Sc. LOND., M.R.C.S. ENG.,

PATHOLOGIST AND LECTURER ON PATHOLOGY AND BACTERIOLOGY AT KING'S COLLEGE HOSPITAL.

LECTURE II.[1]

Delivered on Feb. 8th.

THE APPLICATION AND INTERPRETATION OF THE WASSERMANN REACTION, WITH A DESCRIPTION OF A SIMPLE AND ACCURATE QUANTITATIVE METHOD.

MR. PRESIDENT AND GENTLEMEN,—The importance of an accurate method for the diagnosis of syphilis cannot be over-estimated. Even where there are active and visible lesions the most experienced clinical observer is often in doubt, and when the lesion is inaccessible—such as an intracranial gumma—the recognition of its nature is usually impossible, and much valuable time is often wasted in trying the effect of antisyphilitic treatment. The question is even more important from a sociological point of view, in regard to the question of marriage after syphilis. I believe most strongly that the Wassermann reaction, properly applied and properly interpreted, answers every requirement that the clinician can reasonably demand of the pathologist. Let me outline the steps by which it was discovered, so as to be able to give a more intelligible description of the principles on which it depends.

ORIGIN OF THE WASSERMANN REACTION.

Bordet and Gengou discovered the phenomenon of the absorption of complement in presence of a mixture of a bacterial culture or extract and its appropriate antibody. It did not, however, attract general attention for several years, when it was put to practical use by several German observers, amongst others by Wassermann By this time the Treponema pallidum, the true cause of syphilis, had been discovered by Schaudinn, and it was only natural to attempt to make use of the Bordet-Gengou reaction in the diagnosis of the disease. Here there was a great difficulty: the organism could not be cultivated, so that neither an emulsion nor an extract could be obtained. The discovery of the fact that spirochætes swarm in vast numbers in the livers of macerated syphilitic fœtuses suggested to Wassermann the idea of making use of an extract of such an organ in normal saline solution as the reacting substance in the test. It answered admirably; when mixed with syphilitic serum it absorbed complement greedily, whereas when mixed with normal serum it had no such action. At first this test involved the use of a syphilitic liver very rich in parasites. This is not always easily obtained, and the material was difficult to preserve. But in a very short time Levaditi and several other observers found that an alcoholic extract would answer as well, or nearly as well, as an extract in normal saline solution, and further that it was unnecessary to use syphilitic material at all; an alcoholic extract of normal liver or heart of man or of the lower animals would give the reaction in just the same way. This had the effect of making the tests much more easy and accessible to pathologists, but it had also the effect of showing us that our theories as to its causation were entirely erroneous. Further research seemed to show that the substance or substances which occur in the extract and act as an antigen are of a fatty nature, and many but not all fats will act in this way. The extract can, indeed, be replaced by comparatively simple chemical substances, such as lecithin; and although these artificial extracts have not proved so useful in practice as solutions of tissues, they serve to show beyond doubt that the substances involved are not proteid in nature and therefore not true antigens.

NATURE OF THE REACTION.

This raises new and very important questions as to the nature of the second substance involved—the substance which occurs in the serum and which acts as an antibody. It is certain that it is not a true antibody, and yet it appears to act in exactly the same way in the absorption of complement. Further, it is not strictly specific, for further observations showed that it occurred in other diseases. In the great majority of diseases it does not occur, or occurs only in amounts such as are met with in health. For, and this is a point on which I wish to lay stress, it is always present in normal serum, and the only change which occurs in syphilis is its appearance in greatly increased amount. All sera will give some absorption of complement with this extract of heart or liver if the latter be sufficiently strong. This is usually expressed by saying that the extract absorbs some complement, but I see no reason whatever for distinguishing between this absorption with normal sera and the vastly more powerful absorption which takes place with most syphilitic sera. All grades occur. If a person with a chancre be examined early in the disease his serum will absorb complement (in contact with extract) just like that of a normal person. As the case is watched the absorption grows gradually stronger, so that it appears with extract which has been diluted to such an extent that it is devoid of action on normal serum. Where is it possible to draw the line, and to say that this is a non-specific absorption of complement due to the extract alone, and this is a specific absorption due to the presence of a substance characteristic of syphilis? It seems reasonable to suppose that the reaction in syphilis is due simply to an increase in amount of a substance which is present in health. It is possible that the substance is a lipoid compound, and it may perhaps represent a product of metabolism of the tissues. In health we must suppose that it is given off in very small amount, whereas in those diseases which give the Wassermann reaction the amount is greatly increased. This we may probably attribute in some way to the breaking down of the tissues which forms so important a feature in the disease. In very general terms the amount of the substance, as judged by the strength of the reaction given by the serum, is proportionate to the severity of the case, and to the extent of the active lesions. This I believe to be true with one important exception; very powerful reactions are often (though not invariably) met with in hereditary syphilis, even when there is no evidence of any active pathological process. This is very difficult to explain. Perhaps in a person with hereditary syphilis the tissues, or some of them, have become trained to an alteration in their metabolism, so that there is a greater output of the reacting substance, though without any obvious degenerative changes. If this is so it might account for the greater difficulty in abolishing the reaction in hereditary than in acquired cases; it is easy to believe that such an ingrained alteration of metabolism, acquired in early life and continued for years, might lead to a permanent physiological alteration in the tissues. Be this as it may, a high degree of strength in the Wassermann reaction in hereditary cases means less than the same degree in acquired disease, and is less easily removed by mercurial treatment.

MECHANISM.

Next, as to the mechanism of the reaction. How are we to account for the absorption of complement if it is not due, as in other cases of the Bordet-Gengou reaction, to an interaction of antigen and antibody? Absorption of complement takes place under several different classes of conditions, amongst others under all circumstances in which a solid precipitate is formed; for example, when complement is carried down quasi-mechanically by a precipitate of barium sulphate, as in Wechselmann's method. Now there is proof that the reacting substance in the syphilitic blood does, as a matter of fact, combine with, and precipitate, the fatty substances in the so-called antigen. This is the basis of Porges' test for syphilis; clear serum is added to a solution of lecithin or other lipoid substances, and in many cases will be found to give a precipitate. This has been tried extensively as a simple method to replace the Wassermann

[1] Lecture I. was published in THE LANCET of Feb. 25th, 1911, p. 485.

reaction, but it appears not to be so delicate. This is only what we might expect from other facts known in connexion with complement absorption; this phenomenon is a very delicate test for the formation of an insoluble precipitate, giving indication of its presence when no precipitate whatever is visible to the naked eye. Thus in the test for the nature of blood by means of the precipitin reaction the test is infinitely more delicate if the question of the presence or absence is determined by complement absorption rather than by the presence or absence of a precipitate; it is said that by the former method so little as one-millionth part of a cubic centimetre of blood can be recognised.

It is not absolutely certain that the Wassermann reaction is due to the same precipitation which causes Porges' reaction, but the proof that the absorption of complement in the former cases is due to a process akin to precipitation has been given by Jacobsthal, who studied the behaviour of mixtures of serum and antigen under the ultra-microscope. He found that when a normal serum was used the minute particles of lipoid substance in the antigen appeared as brilliant points, isolated from one another and having active Brownian movement. But when a syphilitic serum was used these points of light ran together to form a large and brilliant mass; with a weakly reacting serum a sort of partial precipitation occurred, the bright points grouping themselves into small masses or chains. These phenomena were found to run parallel to the Wassermann reaction, which they might perhaps replace.

It would appear, therefore, that we can explain the Wassermann reaction somewhat as follows. The dilution of the alcoholic solution of fatty substances with normal saline solution gives rise to the production of an emulsion of extremely minute particles of fat, which form a more or less permanent suspension in the fluid. The syphilitic serum contains a substance which has the power of combining with these fatty particles, and in so doing of altering in some way the surface-tension between them and the fluid in which they are suspended, so that they clump, and in doing so attract to themselves any complement which may be present in the fluid. The process is partly chemical and partly physical, if there is in truth a difference between the two, and in this connexion it is important to notice some facts about the alcoholic solution of so-called antigen which are of great importance in actual practice. The first is its variability. This constitutes the chief difficulty in the use of the reaction and is probably one of the chief causes of erroneous results. An alcoholic extract filtered from sediment is far indeed from remaining of constant strength. As a rule, it tends to become stronger, so that if the phenomenon is not recognised and an appropriate dilution used every blood may give a positive reaction. I have had an extract which got four times as strong as formerly in the space of two days. Occasionally the reverse occurs, and an extract may become quite inert; the change may be sudden or gradual. I think, as a rule, it is unwise to continue to use extracts which have undergone any noticeable change in strength, even if it is allowed for in the dilution. I imagine the change indicates an alteration in the molecular composition of the fatty substances in the extract, so that the size and number of the particles which they form when diluted with a watery fluid are altered.

The other interesting point is the fact (which I believe was first pointed out by Bayly) that the diluted extract is more turbid and has a more powerful action if the two fluids are allowed to diffuse gradually the one into the other and not mixed at once. This has an obvious practical bearing: the one or other process must be employed throughout. I float my alcoholic solution on the top of the normal saline and allow them to diffuse together gradually for ten minutes or so and then slowly stir them together.

TRUSTWORTHINESS OF THE REACTION.

When a new test is introduced the pathologist is constantly asked questions as to its trustworthiness, and the clinician very naturally wishes for a test that shall give 100 per cent. of positive results when the disease is present and none at all in its absence. Now with regard to the latter point, I do not think that there is any reason whatever to think that any of the diseases which are indigenous in this country (with the possible exception of scarlet fever, which may cause it for a short period) ever give rise to the reaction or that it ever occurs in health. But it is universally admitted that a certain small percentage of cases of undoubted syphilis do not react, and this has been used to discredit the reaction altogether, though most unjustly. Now it is extremely difficult to see any theoretical reason for the occasional failure of a reaction which occurs in the vast majority of cases of the disease, and I should like to ask whether it is not possible that these apparent exceptions occur from the use of methods which may cause a weak reaction to be missed or from the use of reagents which have altered in constitution. I wish to state most emphatically that I believe very good results can be obtained from all, or very nearly all, of the processes which have been employed—results so good that they constitute a priceless boon to the diagnostician. My reason for a comparatively long discussion into the technique of the different methods is to point out that with several of them there are combinations of conditions which may lead to an erroneous result, and that some, at least, of these may be avoided by the use of very simple and rapid methods.

Here I must point out that the advantage to be claimed for a simple method is not that it facilitates the work of the pathologist. The benefits that accrue from such a method, if equally accurate, are four in number: more tests can be made in a given time, so that there need be no hesitation in having the blood tested in every case, even where the diagnosis is improbable; the test can be completed and the result obtained quickly enough for ordinary out-patient work, so that the surgeon may know the result of the examination before prescribing for the patient; the possibility for technical error is greatly reduced; and lastly, and most important, quantitative work can be carried out by a process of trial, the result of one test being obtained before the next is commenced. I will explain what I mean by this shortly.

TECHNIQUE OF THE VARIOUS METHODS.

Let me examine in brief the principles of the chief variants in the method that have been proposed. The original process, the so-called "classical" Wassermann reaction, which is used, with some slight modifications, by most of the workers in this branch, commences by removing the complement originally present in the serum. Leaving aside for a moment the alleged reason for this, let us turn to the methods in which it can be done. These are threefold. Firstly, we may heat the serum to 55° or 60° C.; this is the method that is usually employed, and it has the advantage of being quick and easy. Unfortunately, however, it appears that the temperature employed may weaken or hide the reaction, possibly by linking together the complement and some of the so-called syphilitic antibody, so that some of this substance is rendered inert and unable to combine with the antigen. The effect of this, if sufficiently marked, is to cause a negative reaction where methods which do not require heat would give a positive one. The second method—that of Wechselmann—involves the absorption of the complement with an inert substance, barium sulphate; it is theoretically sound, but somewhat complicated, and I do not think it is used practically to any considerable extent. Lastly, McDonagh has tried keeping the sera until the complement disappears spontaneously. This takes some days, which renders it entirely unsuitable for clinical work.

Having got rid of the natural complement the investigator next proceeds to add some fresh, in the form of guinea-pig serum. The question naturally arises, Why take the trouble to get rid of the complement when the next step is to replace it? It is not that which is present is unsuitable in quality; on the contrary, it will act perfectly well. The explanation given is that the natural complement present in human serum varies so greatly in amount that it makes the test unreliable. I have seen no proof of this, and from my own experience deny it most absolutely. I admit fully that if the amount of complement be tested on insufficiently sensitised corpuscles the amount of the former may be deficient, and this was my chief reason for abandoning the use of Fleming's method. Leaving this question for the present, let us turn to the way in which uniformity in the amount of complement is secured. This is accomplished as a rule by the addition of a known amount of guinea-pig's serum, no attempt being made to examine this to see what quantity of complement it actually contains, and yet the amount is well known to vary in different animals. Further, many workers keep the serum in the ice-chest for two or three days, or even more, regardless of the fact that the complement undergoes a rapid fall in amount and a remarkable qualitative change as well.

Others dry it on filter paper and make a solution for the purposes of the test; the amount obtained in this way must vary enormously. Thus it seems very doubtful whether these elaborate processes do as a rule secure the uniformity of complement which is supposed, erroneously, I believe, to be so essential.

Some observers do, it is true, attempt an evaluation of the complement in the serum and proceed accordingly. This is more scientific, but it is also very tedious, and I think not usually done. There is this objection even to this; the process takes some time (as usually carried out; it can be done more quickly by other methods), and during the time taken in testing it the amount in the part remaining is altering. In some cases this is not a serious objection, but it is a decided drawback where consecutive quantitative estimations have to be made, for with so delicate a substance it is not safe to assume that a value obtained on one day is true on the next.

USE OF UNHEATED SERUM.

Let us consider in detail the objection to the use of unheated serum. The only errors which could arise would be due to the amount of complement being too small or too great. Too small an amount of complement would result in the production of a negative result where there should be a positive one: the extract absorbs some complement from a normal serum, and if the total amount were but small might be sufficient just to turn the scale, so that whereas the control tube without extract would show hæmolysis, the tube with extract would show none. This seems plausible, but, as a matter of fact, it is got over with the greatest ease; it all turns on the strength of the antigen, and if this is standardised in such a way that normal sera do *not* give the reaction (as I shall describe subsequently) the objection falls to the ground. But in this connexion much stress must be laid on the fact that the corpuscles must be fully sensitised, for if they are not they may show no sign of hæmolysis in presence of a trace of complement, though capable of full solution if sufficient of that substance is present. Again, as a matter of fact, an experience with over 500 sera has shown me that, provided the serum is not more than 24 or 36 hours old, and provided also that the sensitised corpuscles are added in the proportions I recommend (which has been worked out so as to be suitable for the average amount of complement in fresh human serum), such a phenomenon as I have described does not occur. I have only met with a single specimen (from a severe case of myelogenous leucocythæmia) which did not give enough complement for the reaction.

On the other hand, it may be objected that the amount of complement may be so large that it cannot all be absorbed by the antibody-antigen combination. This is a more valid objection, and I can only answer that I have never found any reason to believe that it ever occurs. I have often obtained weak positive reactions with sera having a very powerful hæmolytic action, but the conditions for a crucial test—an altogether exceptionally large amount of complement in a patient in whom we should expect, but do not find, a very faint positive reaction—have not occurred in my experience so far. I know from experience that a *strong* reaction is not masked in this way, whatever the amount of complement. But Noguchi, who leaves the original complement present and adds fresh, apparently gets very good results. Apparently, therefore, the presence of much more complement than ever occurs in natural human sera does not vitiate the result.

The idea that any error actually arises from variations in the amount of complement—avoidable errors, perhaps I should say—I believe to be entirely erroneous. As I remarked in my previous lecture, the hæmolytic system is simply an indicator, and is used only to see whether a certain combination has taken place, and provided there is neither excess nor deficiency, there is no more reason for getting exactly the same amount every time than there is for adding the same amount of litmus to a fluid we are titrating; and my chief endeavour in presuming to add another to the already long list of modifications of the reaction, is that I believe I have arranged the quantities of the other ingredients in the test so that they will react properly with any degree of complement within the normal limits.

EMPLOYMENT OF SHEEP'S CORPUSCLES.

The processes which do not involve the removal and subsequent addition of complement may be classified under two heads. In the first, advantage is taken of the fact that human serum will, as a rule, hæmolyse sheep's corpuscles without the addition of an artificial immune serum; it contains an amboceptor which will link up its complement to these corpuscles. This is the basis of Hecht's method, which under Fleming's modification is largely used in this country. It is quite a good method, but it has some drawbacks. In the first place, the amboceptor is not always present, or, if present, not to an extent sufficient to cause hæmolysis with the complement also present, and in this case the test is useless unless serum from a known non-syphilitic person is added also. This, of course, is easy, but it is by no means so easy to say what amount should be added, for the addition involves *two* unknown substances (complement and amboceptor), one of which (the amboceptor) is by no means easy to estimate quantitatively. It is surely better always to add amboceptor in known amount, so as to get amply sufficient to sensitise the corpuscles to small traces of complement. The number of cases in which the test fails in its simpler form is variously stated at from 10 to 30 per cent. My own experience with it approached the latter figure, and I found that sera which gave no trace of hæmolysis with sheep's corpuscles reacted perfectly with fully sensitised human corpuscles; in one batch of seven sera four failed to react by Fleming's method, whereas all reacted next day by my own although, of course, the complement was weaker. It was from observations like these that I was led to the belief that the failures of the sheep's corpuscle methods are due to deficient amboceptor and not to insufficient complement.

Another objection I have to the method is that it is unnecessarily slow. The actual manipulation is quick and easy (the technique of Fleming's modification, apart from the differences in the reagents, is almost identical with my own), but the process is longer with the sheep's corpuscles because the human serum, although it contains amboceptor, contains no agglutinin, so that sedimentation is much slower. Using sensitised and agglutinated corpuscles, I can, if need be, perform the test in ten minutes. This is of enormous advantage in quantitative work, as well as in out-patient practice.

EMPLOYMENT OF HUMAN CORPUSCLES.

In the next group of methods human corpuscles are used, and this, of course, involves the use of an immune serum to supply the necessary amboceptor to link up the pre-existing complement. This includes Tschernugobow's process, Noguchi's, Birt's, and my own. These methods have the great practical advantage that human corpuscles are always obtainable.

Noguchi's test thus seems to be more sound theoretically than Wassermann's, and observers who have performed parallel tests with the two speak highly of its value. But it is open to this objection: Noguchi, though he does not decomplement his serum, adds guinea-pig serum. Now this is unnecessary, and adds a useless reagent, besides which it is wrong, for the only error which could arise is that due to a possible excess of the natural complement, and not to its deficiency. Tschernugobow's method is the same as mine in essentials, but he does not employ the proportions which I believe to be important, and he dilutes his blood without allowing it to clot, which is much more difficult and less satisfactory. Lieutenant-Colonel Birt adds the corpuscles (human) at the first stage and the hæmolytic amboceptor subsequently. I experimented with this at the commencement of my researches, but abandoned it. There is a possible theoretical objection to it (the occasional presence of iso-hæmo-antibodies, which might, and I believe may, though rarely, cause spontaneous deviation of complement), and it makes the technique just a shade more complicated. Except for this, his method follows mine very closely.

AUTHOR'S METHOD.

In my own modification[2] I prepare an emulsion of sensitised washed human corpuscles by adding 1 volume of corpuscles to 4 parts of heated immune serum from a rabbit which has been injected with human corpuscles. The strength of this serum is of some importance. It must be strong enough to sensitise the corpuscles to a trace of complement, and it must not be strong enough to clump them

[2] Vide THE LANCET, Sept. 3rd, 1910, p. 732.

instantly, so that they are shielded from the action of that substance. This is determined by experiment, and when the degree of dilution necessary is found the serum is diluted to that extent and placed in sterile ampoules. It gradually loses strength, so that it is advisable to make it a little stronger than is required in the first instance. Enough of this 20 per cent. emulsion of corpuscles to last for some twenty experiments is prepared; the mixture is incubated for a few minutes to allow of the linking-up of the amboceptor, and is then ready for use. For the test take 1 part of the serum to be examined and 4 parts of normal saline solution. The actual amount used is only about 5 cubic millimetres, and the various quantities are measured by means of a Wright's capillary pipette with marks indicating 1 and 4 units. Serum and saline are placed in a narrow tube in a water bath at 38° C. Next a mixture in identical proportions but made with diluted antigen is prepared, and placed side by side with the first. This is the test, the other the control. Other tubes of sera to be examined are prepared in the same way, and when these are done it will probably be time to complete the first test. For some extraordinary reason, which I have been unable to understand, it seems still to be the custom for workers at this reaction to allow the mixture to incubate for an hour or even longer at this stage. I showed last September that the combination takes place in five minutes or less at 38° C.; of course, if a large bulk of fluid is placed in an air-incubator it will take an appreciable length of time to reach this temperature, but with small amounts of fluid in a water-bath it is quite unnecessary to allow more. The second step is to add 1 part of the emulsion of sensitised corpuscles to each tube; if they have settled they must previously be mixed in well. If the balance between amboceptor be right the corpuscles in the control tube will be dissolved before they have time to settle, and if not they must be stirred once or twice, the tubes containing the actual test being stirred in a similar way. In a very few minutes the result can be read off. In a negative reaction both tubes show hæmolysis, complete or nearly so; in a positive one the first tube only will show hæmolysis, whilst in the latter the corpuscles will settle, leaving a colourless, supernatant fluid.

POSSIBLE QUANTITATIVE METHODS.

I have claimed as one of the advantages of this shortened method the fact that it allows quantitative estimations of the strength of the reaction to be made with the greatest ease; of the advantage of this I shall speak anon. Now there are three or more possible quantitative processes available. In the first, we take fixed amounts of serum and antigen, and see how much complement can be absorbed. I think this is the method usually employed, in a very rough way, when quantitative estimations are attempted. Two tubes are prepared, one containing twice as much guinea-pig serum as the other, and inhibition of hæmolysis in one tube and not in the other is regarded as a weak reaction, inhibition in both as a strong one. Sometimes more accuracy is attempted, and the exact number of hæmolytic doses absorbed is estimated. This is a very tedious process, and I have already urged theoretical objections to it.

Another principle is to keep the amount of complement constant, and to find the greatest dilution of serum which will just absorb it. This also is a practicable method, but it is more complicated than the method I am about to describe.

The process which I use (I claim no originality for it except in details) depends on the degree of dilution of the antigen. It has this practical advantage, that the series of dilutions of antigens can be prepared at the beginning of the experiment and are available for all the sera. Thus the amount of labour is much less than it would be if we had to prepare dilutions, it may be numerous, of each serum, and the chance of error is less.

STANDARDISATION OF ANTIGEN.

The first essential is, of course, a carefully standardised antigen. It might be thought that this would be essential for any method, but I do not think its importance is sufficiently emphasised in many of the descriptions of the process which are extant. Further, the method of standardising the extract which is described I believe to be wrong in principle. It should be compared with normal and not with syphilitic serum, and for this reason—the strength of syphilitic sera varies enormously, whereas that of normal sera is much more constant. Some syphilitic sera will give a positive reaction with antigen when the latter is diluted 300 times or more, so that it is obviously useless to attempt to standardise an unknown extract by an unknown serum and then work back and try to titrate the serum by the antigen. It is, of course, a great advantage to test the extract on as many known syphilitic sera as are available, but the criterion of its strength must be its action on the relatively constant normal serum. I employ, and should like to suggest as a standard, the use of an extract of such a strength that, when diluted to 10 times its volume, it exerts a definite inhibiting influence on a normal serum, but does not cause complete inhibition except in a small proportion of cases. Thus my last antigen was tested with six known non-syphilitic sera. All these gave complete hæmolysis in the controls, whereas when tested with a 1 in 10 dilution of the extract two gave hæmolysis of about half the total amount of blood, whilst the other four gave only strong traces of hæmolysis. With an extract of this strength some normal sera may give a complete reaction at 1 in 10, whereas others may give almost complete hæmolysis. A complete reaction with a dilution of 1 in 10, therefore, is without clinical significance; one at 1 in 20 is rarely seen, but when it is it is suggestive, and if met with, for instance, in a patient with a doubtful chancre, will usually be found to mark the beginning of a definite reaction. Complete inhibition at 1 in 30 is conclusive, but the reaction may go much higher than this.

I must repeat a warning on a subject touched on previously. It is necessary to bear in mind the fact that the extract may alter quite suddenly and without any warning. It may become either stronger or weaker Thus I have seen a serum become four times as strong as it was previously in the course of a few days. Originally of the standard strength I have described, it suddenly became so strong as to give a positive reaction with all normal sera when diluted 1 in 40. On the other hand, it may become weaker—indeed, quite inert. This instability of the extract is one of the greatest difficulties the worker has to contend with, and is the chief reason why the reaction is not likely to become a consulting-room test. I do not know any means by which it can be avoided, but if the normal standard I have adopted be suggested, and if occasional tests of normal sera are made with a dilution of 1 in 10, it can easily be detected. If there is complete hæmolysis in these tubes the weakening of the serum may be suspected, whereas if they show little or no hæmolysis the extract has got stronger. In either case it is best to discard it and use fresh.

I prepare the extract from normal human heart-muscle as follows. The muscle is weighed, and 1 cubic centimetre of absolute alcohol added for each gramme of material. These are brayed together in a mortar, some pieces of glass being ground up with them. The mixture is heated to 60° C. for an hour. Next day the grinding and heating are repeated, and the mixture again allowed to stand for 24 hours, at the end of which time it is filtered and titrated with normal serum in the manner described. If it is too strong it may be diluted with 90 per cent. alcohol, but if it is too weak it is best to discard it and prepare some fresh. It is almost necessary to have several samples available in case one should suddenly become useless. I regard the care of the extract as the only real difficulty in the process.

AUTHOR'S QUANTITATIVE METHOD.

The actual technique of the quantitative determination of the strength of the reaction is as follows. First, a control test with normal saline solution (to make sure that there is abundance of complement) is made, and also a test with a dilution of extract at 1 in 30. If there is no hæmolysis in this tube it indicates a positive reaction. In this case a second test, at 1 in 100, is tried at once; if there is no hæmolysis in this still higher dilutions are taken, until the degree to which the extract must be diluted so that it does not inhibit hæmolysis altogether is found. The strength of the reaction is expressed by the weakest dilution with which there is no trace of hæmolysis. For example, if there was a trace of hæmolysis with a dilution of 1 in 150 and none with a dilution of 1 in 100 the serum would be said to give a reaction at 1 in 100. If there is hæmolysis at 1 in 30 the reaction is probably absent, but if present is extremely faint. I usually try also a dilution of 1 in 20. In a certain proportion of cases I try dilutions of 1 in 10, either with normal sera or

with sera which I have found to give a negative reaction at 1 in 20. This serves as a check on the extract. This should not be neglected; the few occasions on which I have obtained anomalous results have all been times when the extract has altered suddenly.

ADVANTAGES OF A QUANTITATIVE METHOD.

The advantages of a quantitative method are numerous. It enables us to detect small traces of a reaction which would otherwise be overlooked. For instance, with a properly standardised extract I have never seen a complete reaction at 1 in 20 in any patient in whom syphilis could be excluded. At the same time, it is impossible to say that it might never occur, so that its significance is determined by the conditions of the case; for instance, it would render the diagnosis of syphilis in a case of tabes practically certain, but would be of much less importance in the case of a patient with a doubtful secondary rash and sore throat, in whom we should expect to get a much stronger reaction. Slight reactions—i.e., those at a dilution not greater than 1 in 30—are met with in very early cases, in very late cases, and in patients partially under the influence of mercury. In general, patients with well-marked syphilis give reaction at 1 in 75 or 1 in 100, and often much higher. In a general way I believe that a high reaction indicates a severe case, but a very much more important question is how the reaction behaves under treatment. In a few cases I have had the opportunity of watching the titre of the reaction gradually fall and disappear altogether, and it seems to me that a weakening reaction indicates that the treatment employed is suitable, and should be persevered with. In a single case I have witnessed the failure of mercury to influence the symptoms or to cause a fall in the strength of the reaction; the patient then had "606" and made a rapid recovery. In this case, as in another I had seen, the first effect of this latter drug was to cause a very rapid and marked rise in the strength of the reaction, which in one went up from 1 in 75 to 1 in 400. This rise was followed by a rapid fall, the reaction taking two months to disappear. In another case a weak reaction (1–30) disappeared in two days after an intravenous injection of "606."

Children and adults with hereditary syphilis as a rule give very strong reactions, and this must not be taken to indicate a bad prognosis. Occasionally, however, patients with slight indications of the hereditary disease may give mere traces of a reaction, and I think this may be taken to indicate, what has been denied, that the reaction may disappear with the progress of time in this class of cases.

Another advantage which quantitative work affords is the certainty of the diagnosis if a strong reaction is obtained. I should feel quite certain of the diagnosis, whatever the clinical symptoms or whatever the character of the case, if the serum gave a reaction at 1 in 100, and believe that with reactions like this (and they are the rule and not the exception in cases with manifest syphilis) the test is an absolute one.

INTERPRETATION OF THE TEST.

Finally, let me lay down some rules for your guidance in making use of the reaction in diagnosis.

First, consider the stage of the disease, if syphilitic. If it is early in the primary stage a negative result means nothing, but if the supposed chancre has been present for six weeks or more you may expect to get a positive reaction, and its absence is of some weight as indicating the probability (it is not more than that) of a negative diagnosis. If the patient has what are secondaries, if syphilitic at all, the absence of the reaction is conclusive. If the disease is in a still later stage, but if there are lesions present and the disease, whatever it is, is progressive, then the absence of the reaction is *almost* conclusive proof that another diagnosis must be sought; the disease may be syphilis, but the chances are enormously against it.

If the patient is supposed to be in the later stages of syphilis, but there are no symptoms or lesions apparent, the question of cure arises. If the reaction is present, even if only slight, the patient is not cured. If there is no reaction the question is more difficult. I believe on the whole that you are justified in pronouncing him cured, but there is always the possibility that the case may be one of those rare ones which are supposed to occur in which no reaction is given at any time. If, however, you have previously examined the blood and have found the reaction, and then at a later date find it absent, the probability of cure is much more certain, always remembering the fact that mercury in itself inhibits the reaction.

Thus in a patient under mercury a positive reaction is conclusive—a negative reaction means nothing. In this case you must wait at least a month, and better for two, before pronouncing the patient cured. I believe a similar phenomenon occurs with "606," though here the explanation is probably different. At any rate, the patient should be examined some two months after the disappearance of the reaction to make sure that it has not recurred. If it has not the cure is probably complete.

Remember in all cases that a positive reaction indicates the advisability of continuing treatment. Thus, in the post- or para-syphilitic stages a reaction (in this case usually slight) may occur or may be absent. If present, I believe that antisyphilitic treatment is indicated, and may prevent the disease from going further, though it will not undo the harm that has been done, or prevent the gradual shrinking of scar tissue, &c.[3]

Remember that a person with congenital syphilis may give the reaction for life, and bear this in mind as a possible fallacy in interpreting such a result. In one of my cases at least the serum test seemed not to agree with the clinical diagnosis. The reaction was a strong one and was obtained by two other workers, and the mystery was not cleared up until the patient's family history was investigated. It is worthy of notice that if there is a question as to whether a case of syphilis is congenital or acquired, an examination of the blood of the mother will usually settle the difficulty, whilst an examination of the blood of the father will not necessarily do so.

It seems hardly necessary to mention the fact, but a positive Wassermann test tells us nothing as to any illness other than syphilis from which the patient may be suffering. The concomitance of syphilis and malignant disease is by no means uncommon, and though the Wassermann test will tell you in most cases whether a person has or has not the syphilitic infection, it affords no clue as to whether a given lump is a gumma or an epithelioma.

THE MECHANICAL TREATMENT OF SPINAL CARIES.

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Splints and Hyper-extension in Spinal Caries.

AMONGST the commoner diseases prevalent in this country the treatment of few, perhaps, has been so neglected as tuberculous disease of the spine. This is the more a reproach as the disease was first effectively studied by one of our greatest English surgeons, Pott, and his name has been universally given to the condition. The reasons for this neglect are perhaps not far to seek. The course of the disease is a long one; conservative treatment, the most satisfactory and indeed the only treatment that can be seriously considered for the bulk of the cases, is slow and tedious. But perhaps the most potent cause for this neglect is the fact that, outside our infirmaries, there are few institutions in this country able to devote a sufficiently large number of beds for a sufficiently long period to enable the disease to be really efficiently studied and treated. Hence it is that the condition, though very amenable to treatment, has been regarded with feelings almost of hopelessness. Very rarely are careful attempts made to prevent the onset of deformity or to correct deformity already existing, and though the prognosis as regards cure is not considered bad, yet deformity and severe crippling are by many regarded almost as inevitable.

At the hospital at Alton, in Hampshire, established by Sir William Treloar in September, 1908, a very considerable number of beds are occupied by cripples suffering from tuberculous disease of the spine. A patient once admitted is not discharged until there is reasonable

[3] In my first 12 cases of tabes I got a positive reaction in all. This was mere chance, and since then I have got about 65 per cent. of positive results, much the same as other observers.

evidence that the disease is arrested or cured. The treatment is conducted under ideal conditions and every endeavour is made not only to cure the patient, but also to prevent or correct deformity. Before outlining the means by which deformity may be prevented or arrested, it is desirable to consider the nature of the deformity and the factors which produce it. Tuberculous caries commonly affects the bodies of the vertebræ. Other parts of the vertebræ may be attacked, but for the purpose of this paper consideration will be directed to the commonest lesion—caries of the body. The extent of the caries varies from a small and relatively insignificant lesion to an extensive one affecting several contiguous vertebral bodies with their corresponding intervertebral discs, and the ligaments and structures adjacent. In progressive and untreated cases the result primarily is a tendency for the spine to bend forward above the lesion and to a less extent below the lesion, forming at the lesion the so-called angular curvature; and secondarily deformity of other parts owing to displacement, compensation, or muscular spasm or contraction. The degree of deformity is very variable and depends on numerous factors, of which may be enumerated the position in the spine of the tuberculous lesion, its extent, its direction of progress, the effect of treatment, age of patient, amount of muscular spasm, &c.

The causes of the primary deformity are: (1) Destruction of the attacked bone; (2) the effect of gravity acting upon the weakened spine; (3) muscular spasm secondary to the inflammatory process; and (4) alteration in intermuscular balance, leading to certain muscles acting at an unduly great or diminished mechanical advantage, and ultimately becoming permanently contracted or attenuated. The first two causes are obvious and well recognised, but the latter two, while being of the highest importance, have received little attention. It must be remembered that the lesion is first of all an inflammatory one, and that it is a generally accepted rule that in the treatment of an inflammatory lesion rest is of the first importance. Therefore all acute cases of spinal caries should not only be at rest but be at rest in the recumbent position; and, furthermore, to rest completely the inflamed part immobilisation of that part is necessary to fulfil the requirement demanded. Rest in the recumbent position will at once abolish one of the factors causing the deformity—viz., the action of gravity upon the weakened spine—for in this position pressure of superincumbent weight is removed entirely, while if the patient is immobilised the strain of use is abolished.

The next point to be most strongly emphasised—and the more so because it is in spinal caries so little considered—is the effect of muscular spasm. Muscular spasm and consequent spinal rigidity manifests itself very early in the course of the disease and is one of the most valuable aids to early diagnosis, frequently appearing some considerable time before there is any evidence of angular curvature. It is primarily protective, being nature's way of securing immobility to the affected part, but the cost of this immobility to the patient is heavy and can be altogether avoided. Unchecked it produces much pain and may actually aggravate and promote the spread of the disease. Artificial immobility, properly applied, avoids these drawbacks. Professor Howard Marsh[1] very clearly describes the evils of unchecked muscular spasm: "All will accept the general proposition that rest is essential in the treatment of inflammatory diseases of the joints. Yet there are some points which require to be insisted upon in order that this principle may be adequately carried out. The first relates to the injury produced by reflex contraction of the surrounding muscles. This reflex contraction is present in the case of all the articulations." It produces "interosseous pressure which is mischievous not only in its immediate effect on the ends of the bones, but because, by giving rise to reflex irritation, it tends to maintain and aggravate spasm in the surrounding muscles. Indeed, these two conditions of interosseous pressure and muscular spasm act and react on each other and so concur to promote the advance of the disease." The muscular spasm especially affects those muscles adjacent to the focus of the disease. The contraction of the muscles alone, even when the patient is recumbent and when the action of gravity in the production of deformity is removed, may of itself, and frequently does, cause deformity. The eroded vertebral body under the constant strain of its investing irritated muscles is gradually compressed and at length gives way. Deformity once commenced proceeds more rapidly as the mechanical advantage under which the anterior spinal muscles act becomes more pronounced, while the opposition offered by the posterior muscles simultaneously decreases. "Normally, when the body is erect, there is a proper adjustment or balance between the bones, the joint structures and the muscles, so that the weight is borne easily without any special strain upon any one part or to any one structure. As soon, however, as the body bends forward, as it must at the seat of the disease, the posterior muscles, because obliged to pull round the angle of the knuckle, work at a distinct disadvantage, and the balance between the extensors and flexors, which is nature's protection against deformity, is lost. The anterior muscles improperly antagonised draw the body forward."[2] The muscles once contracted, if left to themselves, do not relax, but remain permanently shortened. Even if the disease does become arrested they still anchor down the bent and by this time commonly ankylosed spine, and if the patient is a child the evil results in subsequent growth may become still more apparent, for not only is the deformity maintained but other structures in the vicinity become more displaced, embarrassed, and more distorted. In dorsal caries the baneful effects of this are particularly apparent.

From consideration of the preceding statements it follows that in the treatment of acute spinal caries general rest should be enforced, absolute rest to the affected part is desirable, deformity should if possible be prevented, interosseous pressure at the site of the disease avoided, and muscular spasm overcome. These desiderata may all be obtained by keeping the patient recumbent, immobilised, and hyper-extended, the hyper-extension being in some cases aided by traction extension.

I now turn to the details of the apparatus employed designed to meet those requirements in the treatment of spinal caries which I have emphasised. Many varieties of spinal boards have been described, and it is impossible in this paper to consider all these or to weigh their respective advantages or drawbacks, but one which appears to be peculiarly suitable for the treatment of spinal caries while the patient is in the recumbent position is that used at the Maritime Hospital, Berck-sur-Mer.[3] This board is the model which I take for those employed at Alton, but I have altered the board in various ways, and I venture to think I have made it more generally suitable for the treatment of these patients. The board as used at Alton consists of an oblong tray made of strong but light wood. The length should be from 12 to 18 inches longer than the patient and the width about 8 inches greater than his greatest width. The sides of the board are about the same height as an ordinary Phelps box, roughly 3 to 4 inches, with the exception of the foot end, which is raised to a height of from 15 to 18 inches and thereby takes away from the patient's feet the weight of the bedclothes and tends to prevent the onset of foot-drop. The bottom of the board is perforated with numerous holes to admit ample ventilation of the mattress. The corners are bound with sheet-iron angle pieces, which, while adding greatly to the strength of the apparatus, do not unduly increase its weight. Across the board is placed a piece of wood of suitable height, usually 2 to 3 or 4 inches, and of about the same width, which stretches from one side of the board to the other and is designed to be placed immediately under the most prominent part of the angular curvature. It is fixed by means of two iron pins which serve a double purpose—(1) to retain the cross-piece in position, and (2) to indicate at a glance where on the patient the angular curvature is. A firm pillow, if fixed, forms a suitable substitute for the wooden cross-piece. A well-prepared horsehair mattress occupies the tray over the cross-piece and on it the patient reclines. On the head and foot ends of the board are slits cut for the hands to facilitate its transport. At the head end of the board two pieces of strong elastic webbing 1 inch wide and about 6 inches long are attached, and to these a bridle can be buckled when head extension is desired. At the foot end, which, as previously described, is raised to prevent foot-drop, are two longitudinal slits

[1] Howard Marsh and Gordon Watson: Diseases of the Joints and Spine, Cassell and Co., 1910.

[2] Goldthwait, Painter, and Osgood: Diseases of the Bones and Joints, Heath & Co., 1909.

[3] Ménard: Étude Pratique sur le Mal de Pott, Masson et Cie, 1900.

through which the cords of a leg extension can be passed over a suitable pulley. This pulley is fixed to two perforated upright pieces of wood attached to the board on each side of each longitudinal slit, and these are so arranged that between them an upright extension rod can be inserted if there is much flexion, and if at the commencement of treatment the leg cannot be sufficiently extended to allow it to be drawn directly in line with the trunk. As a matter of convenience it is usually desirable to fit into these extension poles a triangular frame of wood terminated by a pulley which will carry the extension well beyond the foot of the bed and allow the extension cord to hang free. The patient is fixed on this board in a very simple and effectual manner. A jacket composed of stout jean fitted accurately to his body and preferably stiffened with whale-bone encases the patient. On the back of the jacket two strips of webbing are

FIG. 1.

Spinal board.

let in, which strips cross each other as a St. Andrew's cross, and these are buckled to the sides of the board and effectually prevent the patient from moving in any direction and keep him in the exact position which has been decided upon as desirable. The jacket should be laced and buckled over the front of the patient, as in the case of a child mere buckling will not prevent the patient from undoing his straps and himself altering his position. Children are somewhat puzzled if in addition to the buckles the jacket is laced, and this combination is usually sufficient to prevent them altering the adjustment.

This board has numerous advantages. It is extremely simple, efficacious, portable, convenient in nursing, hygienic, and comfortable for the patient. The bed-pan can easily be administered without the patient's position being in any way disturbed, and if desired the patient can be tilted out of the horizontal position, but in this case an addition should be made to the jacket which will be described later. It will be at once seen that extension can be made from the head or the legs to any extent required without the board being necessarily tilted, as the method of fixing the patient prevents him from sliding out of the desired position. In cases of cervical caries a bridle is fixed on the head and attached to the elastic straps already referred to. This bridle should be especially constructed and adjusted with great care. I am in the habit of making it of webbing, and the particular form of bridle employed has the following features: the chin strap has a diamond-shaped aperture in which the chin can be inserted and fixed, or better is made of leather moulded on to a cast of the chin; the occipital strap meets the chin strap at a point between the eye and the ear on each side, being permanently attached on one side and buckled on the other. From this angle of union a straight strap on each side passes to the elastic extension bands, and these traction bands are prevented from slipping by another strip of webbing attached to them and which passes round the head, behind over the most prominent part of the occiput and in front across the forehead just above the eyes. The object of having a bridle fixed in this way will become apparent if the method in which the extension acts is considered. The centre of gravity of the head lies roughly in a line between the eye and the ear. The more anterior the point of traction be on this line the more hyper-extended the head will become, and the nearer the ear the point of traction may be the more will the head tend to flex. If, then, the particular degree of hyper-extension be decided upon and that point be always rigidly adhered to, the rest which will be given to the diseased cervical spine will be most effectual and an approximation of immobilisation be obtained. To prevent lateral movements of the head either side straps may be applied, or else, as is more commonly done, a sand bag on each side secures the desired fixation.

In cases of dorsal caries, particularly upper dorsal caries, angular curvature produces a very marked and unsightly deformity. The deformity here is of two kinds: (1) the primary deformity due to the curvature itself and (2) the secondary deformity induced in the bony thorax and which is entirely the result of displacement produced by the alteration in the contour of the spine. If deformity of the spine is prevented, the secondary deformity does not occur. It is desirable in cases of upper dorsal curvature to remember that the scapulæ themselves and the muscles attached thereto may prevent the best results being obtained by hyper-extension, and it is therefore often desirable to place in the jacket which has already been described appropriate padding under the curvature and between the shoulder-blades to increase the hyper-extension which would be produced by the cross-piece alone, but which, if the cross-piece alone were employed, could not act to best mechanical advantage.

In cases of lower dorsal or lumbar caries psoas spasm is an additional factor which must often be considered, and this can be best overcome by leg extension, which again by the method of fixing the patient can be easily applied without discomfort and without the board being removed from the horizontal positi n.

In cases where the disease is active and where there is much reflex irritation of the muscles about the spine simple hyper-extension is sometimes not sufficient, and head and leg extension combined will be necessary to overcome the spasm of the muscles and prevent increase of deformity resulting from muscular spasm, but this extra extension very rarely has to be maintained for any considerable period. Three weeks of combined head and leg extension is usually sufficient completely to abolish spasm of the muscles—at any rate, spasm of a sufficient degree to cause deformity.

The board just described, while extremely efficacious and of the very greatest value, has, nevertheless, some disadvantages to which I will now allude, and these disadvantages, though apparently not serious, are still sufficient to make it desirable to design some other method of mechanical treatment. In the first place, it must be remembered that in a patient with spinal caries strapped in one position with considerable pressure acting on the angular curvature, bedsores may occur unless the greatest care be taken, and to prevent the onset of bedsores it will be found desirable in the majority of cases to attend to the patient's back every four or at the most every six hours. It is my practice to have the child turned on his side at these intervals and the back thoroughly washed, powdered, and massaged. If this treatment be assiduously undertaken bedsores should not occur. But it will be at once seen that the necessity for this movement is a great disadvantage—(1) because the spine is not maintained in a state of rigid immobility, and the movement may retard the arrest of the

disease or may even provoke a new spread of the inflammation; and (2) because it is almost impossible to ensure that after the child is replaced in his jacket the adjustments will be as perfect as is desired and the apex of the curvature occupy the summit of the convexity on the board. It may seem that these objections are not of the first importance, but in practice I find that they undoubtedly do occur and that they are a source of danger. It is quite easy for the nurse to replace the child in such a position that the curvature is a little above or a little below the cross-piece, and in that case not only is the deformity not diminished, but it may even be increased. Another point to be remembered is that some distension of the child's abdomen with flatus will necessitate the loosening of the jacket and may allow the child to somewhat shift his position.

To overcome the above disadvantages I have been in the habit of employing a splint which I have especially designed and to which the name of "the back-door splint" has been applied. Each spinal splint is made especially for each individual case.

Measurement of the splint.—The patient is stretched on his back on a piece of paper, the head is held by one assistant and the legs by another, and the contour of the trunk is traced out. The splint should be a shade smaller than the contour of the trunk. The bottom of the splint should be just above the natal cleft. The tracing is then cut out and a piece of beechwood cut to exactly a similar size. Well-seasoned beech is especially chosen because experiment has shown that it is very strong, that it does not warp readily, and it has the additional advantage of being cheap. The outer part of this is cut away 1 inch from the periphery all round, forming an outer frame. This is covered with sheet iron screwed to the frame, and forms a strong and rigid framework. The iron is then lacquered to prevent it rusting when subjected to the heat and moisture of the body. The inner part or back door which fits into the outer frame accurately is pared down a little so that it can be removed and replaced with great ease, and is perforated with holes for a double purpose—both to ventilate and to assist in fixing the padding which is later to be applied to it.

FIG. 2.

Back-door splint with patient. The splint is so designed that the patient may be permanently immobilised and hyper-extended while the back is readily accessible. The back door is easily removeable and may be repadded as circumstances require. On this splint the patient can lie in comfort for an indefinite period, and increasing deformity is impossible.

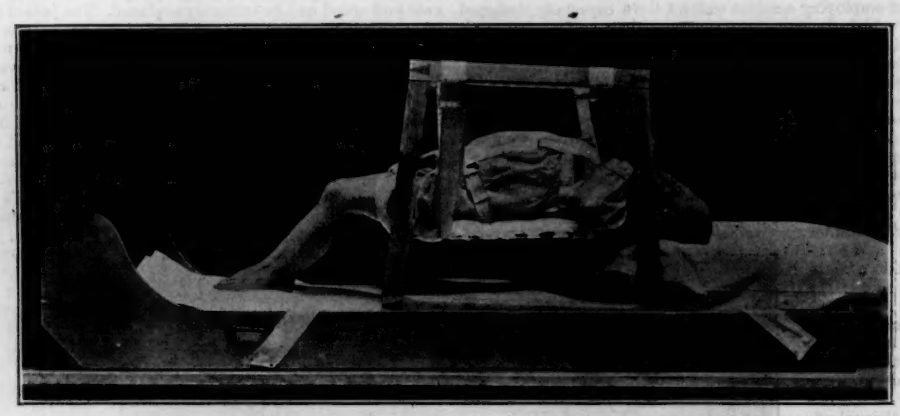
The padded outer frame and back door.—The outer frame is padded evenly all round, but especial care must be taken in padding that part which will come in contact with the sacrum. The padding should be perfectly even, and the best material to employ is animal wool because this never cakes and has a springiness and elasticity which make it peculiarly suitable for this purpose. The padding is firmly bound down to the splint by splint linen, and should be covered on the lower part with jaconet to prevent it being soiled or saturated if the patient is not able properly to control his evacuations. The back door has on the lower aspect a suitable handle which facilitates its introduction or removal from the outer frame. It is kept in position by four small clips which are attached to the outer frame. The surface of the back door next to the body is also padded thickly with animal wool, and this padding should be especially thick and firm at the site of the disease, so that due hyper-extension of the spine may be obtained. It will be found convenient to use tape in the fixing of the splint linen instead of ordinary thread, as with the tape the padding can be made more secure and much more durable. The patient is fixed on to this splint by means either of a jacket or by webbing. Webbing is simpler to apply and is better in warm weather, but the jacket is neat and gives the apparatus a more finished appearance when in use. If a jacket is employed it will be found most convenient to attach it to the outer frame on its inner side, and the jacket should be made in two pieces, each in duplicate, so that should it become soiled the soiled portion can be immediately removed and replaced. In any case it would be desirable to remove the jacket at intervals so that it may be cleaned—about once monthly is commonly sufficient. To facilitate the removal it will be found convenient to employ patent placket fasteners. By the use of these the jacket can be removed with the greatest ease and speed and be instantly replaced. The jacket should be strapped and laced over the front of the patient, as in the manner described previously. Should webbing be used in place of the jacket a piece of webbing should come over each shoulder. Two pieces should come round the trunk and all should be fixed to the inner side of the outer frame of the splint. They should be buckled appropriately on the front of the trunk. It will be found that by employing a splint of this nature the patient's back can be attended to without the patient being moved, and with the very greatest ease. The patient's shirt should open at the back, as in the illustration. (Fig. 2.) The patient can then have his back washed, powdered, and massaged at the necessary intervals, and soon is so little disturbed in the process that he does not even wake up when this is being undertaken by the nurse. Moreover, he is permanently immobilised in that position which has been decided upon as the best one for his requirements. There is no possibility of a mistake on the nurse's part in the readjustment of the child, and while he is turned his spine is still held rigidly in position by the outer frame. Once a day the jacket is unlaced or the webbing unbuckled and the child is washed without even being removed from the splint. In this way he may be kept for an indefinite period if desired without altering the contour of the spine. This description indicates the principles of the back-door splint, and I will now further describe its use for special conditions of the spine.

In cases of cervical caries either a simple bridle extension, as already described, may be employed or, better, the outer framework is prolonged on each side of the head and is terminated by an upright iron bar to which the bridle is attached by the elastic extension already described. The child is then turned as a whole when his back requires attention. It will be seen that this prevents any danger of injury in cervical caries and altogether prevents the possibility of those appalling disasters which have been reported when the transverse ligament of the atlas vertebra is affected.

In cases of dorsal and lumbar caries additional hyperextension may be obtained in two ways: (1) either by mounting the outer frame of the splint on short legs; or (2) by suspending the outer frame. The latter method I shall describe first. Here, what we speak of as the swinging back-door splint is conveniently employed. The illustration appended will explain most graphically the nature of this splint. The idea of swinging a patient with dorsal

caries is by no means a new one and had been attempted long ago by Rauchfuss.[4] He, however, simply swung the patient in a canvas hammock, and this method had many drawbacks, inasmuch as the patient was not adequately immobilised, attention to the back could not be given easily, and there was some danger of lateral compression of the thorax. In the combination recommended here it will be seen that there is a rigid support for the back, the back can be easily reached and attended to without interfering with that rigid support, the patient is absolutely immobile, and the thorax is not compressed, nor is respiration or digestion in any way impeded. The proper hyper-extension is obtained, and the partial weight of the legs and head is of the utmost value in overcoming muscular spasm.

FIG. 3.



Swinging back-door splint. The head and legs here form a natural means of extension.

FIG. 4.

Wheelbarrow splint, especially indicated where there is spasm of the psoas muscles or psoas abscess.

When the disease is in the lower dorsal, dorso-lumbar, or lumbar regions, and when spasm of the psoas muscles occurs, it will be found perhaps desirable to immobilise the legs, and for this purpose the splint on legs, already alluded to, has been designed. This has been named the "wheelbarrow" splint. The illustration here given will best describe this splint. It will be seen that the outer frame of the back-door splint is supported on four legs, and that the legs themselves of the patient are fixed to back splints which are attached to the frame by a special hinge so designed that the legs cannot flex, can hyper-extend to any degree desired, can abduct or adduct (so that the bed-pan can be applied with ease and the child be attended to with comfort), cannot invert or evert. Extension may be applied to both legs with the greatest ease, and it is recommended that this extension be applied with the assistance of the special foot-splint figured, which is a modification of one used at Berck-sur-Mer. It will be seen that the extension strapping is attached to this foot-splint, and the weight comes on the foot-splint itself. With this contrivance perfect fixation can be secured with comfort to the patient. The head may either be supported by the pillow, which should be at a lower level than the splint, or by an extension of the splint upwards, and the latter is usually employed, as the head is then always at the same level and a constant pull by the weight of the head is ensured. Uncomfortable as it may seem, neither this nor the swinging back door-splint is objected to by the patient. Head extension can of course be applied by the aid of the bridle as before mentioned.

One small point may be here mentioned which does not seem to attract attention, but is worth consideration, especially in an institution where many spinal cases are under treatment. Spinal boards of any description whatever employed are commonly put on ordinary beds, and it will be noticed that this involves not only the bed necessary for the spinal board but also the mattress and accessories required for the bed. Further, the bed is invariably so low

[4] Ménard: Loc. cit.

that if many cases have to be treated undue strain is put on the nurse in tending the child by the constant stooping which the low position of the bed demands. To avoid this I have substituted for the bed commonly employed a special stand which is simple in construction and adapted specially for the requirements of the special cases here described. The stand can easily be constructed by any intelligent carpenter assisted by a blacksmith. Its legs are of ordinary gas-piping cut to a height of some three feet, and on these legs is mounted a wooden frame on which the board is placed. The board is then at a convenient height for the patient to be attended to without strain being put on the attendant, and is found convenient in every way from the nurse's standpoint. The patient's mattress is much more easily ventilated and the patient's comfort is thereby increased. A special covering made to fit the board is placed over the patient and board and makes it impossible for the clothes to fall from the patient. The greater height at which he is placed usually results in the patient being nearer an open window and increases the amount of fresh air he can receive. Dust and dirt can find no place under the stand and that is a consideration which is especially desirable to bear in mind in a private house. It will also be noticed that the amount of bedding and blankets required is much decreased, and this is of importance in the economical working of an institution both from the point of view of first cost, where the save in horsehair for mattresses and in bedding materials is thereby decreased, and also in cost of upkeep as the amount which is sent to the laundry is sensibly diminished.

FIG. 5.

Stand as used for reading and feeding.

Granted that there is no reason why the patient should be kept lying in the recumbent position, before he is allowed to assume the erect attitude the length of time he has been recumbent should be remembered, for it is obvious that if a patient has been in a horizontal position for a considerable period any change from that position to the vertical will be associated with alterations in the blood pressure, and if this alteration be not borne in mind consequences which may be somewhat alarming may ensue It is my practice never to allow a patient to be suddenly permitted to assume the erect attitude, and to permit this transition to take place conveniently he is commonly placed on the stand which is here figured and which may indeed, if desired, be employed throughout the whole treatment.

The essentials in this stand are that the patient at will may occupy any position, either horizontal or vertical, or at any intermediate angle. This alteration is very simply effected by merely turning a handle which governs a screw fitted into the cogs of a semicircular piece of brass which will be seen attached to the under-surface of the spinal board. The patient when tilted in this way should have, at any rate in the case of an adult or large child, additional support to that given by the jacket before described, for while this jacket alone will hold him firmly, yet without other assistance it may cause him undue and unnecessary discomfort. It will therefore be found desirable to have two pieces of webbing passing longitudinally down the board from the head end and let into the back of the spinal jacket on either side of the spine. These pieces are continued under the crutch and are there padded with a small pad of animal wool and covered with jaconet, and this pad is so adjusted that it will press on each of the tuber ischii. The webbing continued from the crutch passes over the front of the patient and is strapped to the board on each side at about the level of the nipple. This simple contrivance will effectually and comfortably support the patient even in the vertical position and will not in any way bring undue pressure to bear upon his spinal lesion provided he has in the first place been so placed on his board that the spine is sufficiently hyper-extended. In many cases it is permissible to allow the patient to rest on a seat, which can be suitably adjusted to the spinal board. This is permissible when there has been no spasm of the psoas muscle or when there have been no complications, such as gluteal abscesses. It will be at once seen that when the patient is in this position he has the great advantage of seeing surrounding objects with ease, and when a suitable book-rest is adjusted to the board he can read and feed himself with comfort in the natural position. Such a contrivance will be found of the very greatest service to these patients, who are so helpless and so debarred from simple pleasures and conveniences, and it will be of particular value in the case of children, who can thereby continue their education within reasonable limits without in any way complicating or interfering with the treatment which is being applied. It will be noted that this tilting stand is mounted on wheels and can easily be wheeled out of the ward or room into the open air, and in fact can be wheeled anywhere as easily as could a bath-chair, and the delight which this possibility of change of scene gives to the child is of value and assistance in the treatment. He can be conveniently and expeditiously removed out of doors and attended to throughout the day, and this in itself is, as will be readily seen, of the greatest value.

The great benefits which resulted from the alteration from the horizontal to a more or less vertical position suggested that where the patient was suffering from a sinus it would be an advantage to place the patient in that position where the sinus could be best drained, provided the essentials already indicated were maintained, and the stand illustrated may be obtained to satisfy this requirement. On it the patient can be fixed in any desired position, at any angle in any plane.

In this paper I discuss mechanical treatment during recumbency only. Mechanical treatment after the abandonment of the recumbent position will be discussed at another time.

Alton, Hants.

WORKMEN'S COMPENSATION ACT, 1906.—The Home Office has published a list of the names, addresses, and districts of certifying factory surgeons in England and Wales. The duties of the certifying surgeon have since 1907 been extended to industries outside the Factory Act by the provisions in the Workmen's Compensation Act with respect to compensation for industrial disease, under which a worker in those industries before he can claim compensation for disease has to obtain a certificate from the certifying surgeon; and this list has been prepared as a ready means of reference for workers and their representatives desiring to ascertain the name and address of the certifying surgeon to whom application must be made in any particular case. (Persons employed in factories or workshops can always ascertain the name and address of the certifying surgeon by reference to the abstract posted up in the works.) The list is published at 1s., and can be obtained, either directly or through any bookseller, from Messrs. Wyman and Sons, Limited, Fetter-lane, London, E.C. Similar lists for Scotland and Ireland will be published in due course.

THE EDUCATION OF THE DEAF:

ITS PRESENT STATE IN ENGLAND, WITH SUGGESTIONS AS TO ITS FUTURE MODIFICATIONS AND DEVELOPMENT.

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II.[1]—THE CLASSIFICATION OF THE DEAF.

IN my first article I gave some account of the practice in different countries in regard to the classification of the deaf child for purposes of education, and I pointed out that, in two great nations at least, there was ample opportunity for evolving a system that should be as near perfection as it is possible to attain in the light of modern knowledge. These countries are the United States, where a series of experiments is being carried out on a large scale and practically regardless of expense, and England, and especially London, where the evolution of a system of classification may be said to be in an active stage. London, the metropolis of the world, the hub of our great Empire, has the right, if she will but use it, to take the leading part in this great work for humanity, and I am confident that, could her citizens but be brought to take an active interest in the subject, a properly organised system would shortly become an accomplished fact.

Among the beneficial results that must accrue from the working of school medical inspection should most certainly be included a practical and scientific classification of deaf children. This is to be expected because, with the increased interest in and wider knowledge of the physiology of education will come a better recognition of the vast, the paramount importance of perfect hearing to the scholar. The question of the teaching of the deaf will therefore appeal to a larger and more extended mass of educationalists instead of to the somewhat limited body more immediately interested hitherto. Further, the periodical assembling of international congresses on school hygiene must tend, in the near future it is to be hoped, to make any improved scheme of classification an international one, to be more universally adopted and to approach more nearly to perfection because of the more varied experience that can be brought to bear upon it.

The systems of classification at present in practice, and which I have already outlined, are by no means equal in merit. In some countries—as, for instance, in Denmark—the method in use is more liberal in conception, more practical in execution, than in others. In some, again, it is fettered by prejudice or cramped by the too narrow views of those by whom it was framed or with whom rests its application. That is why, in the United States, the achievement of great results is likely, because the system is there in an experimental stage, and there are no very hide-bound customs and prejudices to be overcome before the best arrangement can be evolved.

When it is considered how widely the methods of deaf education and the legislation concerning them vary in different parts of the world, it is not surprising that opinions as to the classification of the deaf child are equally variable, or that a very considerable literature has accumulated thereon. A study of this literature and of the opinions that it represents is alike interesting and disappointing. I have no intention to review these opinions, but I would point out that the subject has been often too much obscured by the bias of the writers, according as they are pure oralists or enamoured of various other methods, combined or otherwise. There can, however, be no doubt that the opposition to pure oralism is diminishing steadily as the latter becomes more and more improved by the experience of its advocates. One feature of the different schemes of classification stands out conspicuously to those whose prospect is not obscured by prejudice—they have been built upon too shallow a foundation, conceived from a too limited point of view. So far as my own knowledge goes, Kerr Love, of all writers upon deaf education, is the only one who has spoken from a broad standpoint and with an eye which commands an extensive horizon. He asserts[2] that "further progress in the education of the deaf-mute depends not on the study of methods of deaf education, but on a study of the deaf themselves, a study which will give a scientific classification, and which will enable existing methods to be applied with greater efficiency," and he has suggested that a better classification of the deaf would be into two groups:—"1. The subjects of 'surdism.' Those congenitally deaf or becoming deaf so early in life that no speech will develop apart from tuition. 2. The semi-deaf and semi-mute. The former have some speech in virtue of their power to distinguish the separate tones of the human voice; the latter may have no hearing at all, but speak in virtue of the hearing and speech present before deafness occurred.[3] It is generally assumed that the semi-deaf belong wholly to those having become deaf adventitiously. Most of them do so, but a few, as we shall see, belong to those *congenitally* deaf."[4] This author, in striving to obtain a rational and practical classification, has followed the only really right direction—viz., the direction of the *individual*, based not upon abstract ideas, but upon actual facts, facts that are staring us in the face, facts that we can glean only *from a study of the deaf child himself*. This is alone sufficient to place Kerr Love in the front rank of modern writers upon deaf education.

But this classification does not go far enough. The term "deaf-mute," as applied to the deaf child requiring special teaching, which is always cropping up in matters of deaf education, has been a great stumbling-block in classification. This has been accentuated by the entirely erroneous tendency among those ignorant of the deaf child to class him with the mentally defective and imbecile—a tendency recently exhibited in a remarkable manner by one who gave evidence before the Divorce Commission, in which the congenitally deaf were classified with lunatics, idiots, imbeciles, feeble-minded, sane and insane epileptics, and chronic inebriates! The education of the deaf is no narrow question which concerns only the deaf-mute, it is a far wider one which embraces, or should embrace, the teaching of all sorts and conditions of children who have, to any extent, however small or however great, lost the sense of hearing. Kerr Love has recognised this and substitutes the term "deaf child" for that of "deaf-mute," and I believe that, at no very distant date, educationalists and, after them, legislators will recognise this fact, and that the future education of the deaf will form a vast system which will comprehend the proper method of teaching the deaf from the very slightly deaf child to the blind and mentally defective deaf-mute. That any scientific classification of the deaf child for educational purposes will have to be thus widely inclusive must be patent to all who have given the matter proper consideration. Once this great fact has become recognised and admitted it will be but a short step to the introduction into every country of one universal and international system of deaf education.

As I pointed out in the concluding paragraphs of my first article, changes which have begun to take place in the education of the deaf show that it is becoming more and more recognised that not only the deaf-mute, or, as I prefer to call him, the very deaf child, requires special education to fit him for useful, self-supporting, and self-respecting citizenship, but also the scholar with a, comparatively speaking, much less degree of deafness. And this, it may be fairly and confidently asserted, is due to the awakening of educationalists, by the establishment of efficient school medical inspection, to a sense of the necessity of a study of the *physiological* aspects of education.

Upon what system, then, must a rational classification of deaf children for purposes of education be based? It should, as I have indicated, be made to include *every child who shows any sign of loss of hearing, be it ever so great or ever so small.*

The form of classification which, so far as my present opinion goes, would be best for adoption is a modification of that foreshadowed in my paper on Deafness in Relation to School Medical Inspection, written in 1908.[5] It is to some extent a modification of those advanced by Laubi[6] and Kerr

[1] Article I. was published in THE LANCET of Feb. 25th, 1911, p. 495.

[2] The Study of the Deaf Child, Glasgow, 1907, p. 4.

[3] If the occurrence of complete deafness in the adult can give rise to the results detailed in THE LANCET, Feb. 4th, 1911, p. 330, how much more readily and rapidly must the semi-mute child lose his power of speech.

[4] Loc. cit., p. 31.

[5] British Journal of Children's Diseases, November, 1903.

[6] Swiss Society of School Hygiene, 1903.

Love.[7] It necessitates the preliminary inspection of all school children in the first year of school life and a special examination by an experienced otologist of all those who are found wanting in this respect. By this means the deaf may be classified into three primary groups—the very deaf, the semi-deaf, and the slightly deaf. Not only would this inspection lead to a more efficient classification for education, but of the whole number of cases detected by this method some 50 per cent. could be cured, and of the remainder a good proportion would be capable of considerable improvement. It would thus serve a double end—efficient education and efficient treatment, at which all rational school medical inspection must aim, or it is futile.

One word here as regards efficient treatment. It is one thing to talk about it, another thing to obtain it. With the detection of early deafness by school medical inspection should come prompt treatment, but, however much school medical inspection may insist upon this, there are two obstacles at present in the way—the attitude of the parent and the attitude of the practitioner. Both want waking up, both want educating in the matter. The former is too often neglectful of the best interests both of himself and of his child. Life is hard and time is precious, but intact senses are of yet greater value, and the parent must have it brought home to him by argument and, if necessary, by legislation that he is not doing his duty to the child he was instrumental in bringing into the world unless he does the utmost in his power to preserve not only his general health but that of his special senses. It is largely the general practitioner's duty to bring the parent to a proper sense of his obligations, for he is the expert with whom the father or mother comes most in contact; but, as I tried to point out in my paper on the duty of the practitioner to the deaf child,[8] not infrequently the practitioner requires educating also, and in some cases not merely the general practitioner but the specialist as well. Were the general practitioner and the specialist more alive to this fact and the parent more amenable, there would be a far less number of deaf people in the world.

Between the three groups of deaf children obtained by the method suggested above there is no absolute line of demarcation. In the very deaf class must be included the normal and defective (blind and mentally deficient) deaf-mute and those with residual hearing (vowel hearing or for very loud speech close to). The semi-deaf should comprise those who are possessed of a greater degree of residual hearing, sufficient to give them a certain amount of residual or natural speech—the "semi-mute." The slightly deaf may be divided further into two groups of "very slightly deaf" and "hard of hearing." The educational methods necessary for the efficient teaching of the three primary divisions range from the various deaf schools to the ordinary hearing classes of the elementary school. Bezold considered that school work is possible when the scholar can hear loud speech at two metres, as the teacher can generally manage to place himself at that distance from him; those deaf children whose minimal distance is less than half a metre he thought could be taught if the teacher can pay him special attention. With this opinion, however, I cannot wholly agree. In large classes it is impossible for the teacher to pay much individual attention to a child who can only hear loud speech at less than half a metre, and one whose distance for the same vocal effort is two metres must, even when placed in the front desks, lose a large part of the instruction offered. Our aim is to obtain for the deaf child the best education possible, and, even if he is a good lip-reader, a child with the defect just described cannot fulfil this end. The scholar has to receive instruction whilst he is bending over his exercise or reading his book, and he must not lose the thread of an explanation given by the teacher who has his back to him whilst writing on the blackboard or explaining a diagram. Hence the test that must form the basis of classification in the slightly deaf class of child is what is known as the forced whisper. For practical purposes of efficient teaching slightly deaf children should be subdivided by this means into the very slightly deaf who can hear the forced whisper at three feet or over, and the hard of hearing whose acuity is less than that distance. And into this test the mental quickness of the individual scholar must also enter. Indeed, in every classification two factors—degree of hearing and mentality—must be taken into consideration. The very slightly deaf (whisper three feet or more) can very well be taught in an ordinary hearing class, the worst specimens, from either the hearing or mental point of view, being kept in the front row. The hard-of-hearing child (whisper less than three feet) requires more than this; he should receive a part of his curriculum in the front row of a hearing class, whilst he also receives instruction in lip-reading in a special "hard-of-hearing" class where attention can also be paid to his speech and any existing defect of which can there be remedied. He could be returned permanently to his ordinary hearing classes when he is fit to do so in the opinion of his teacher and the medical officer. These hard-of-hearing classes could be held upon specified days of the week and should be in charge of a visiting teacher who is a certificated teacher of the deaf. Such classes ought not to contain more than 15 scholars on the roll at the utmost. Probably, too, there would have to be two classes, one for pupils between the ages of 5 and 10, the other for older children; the experience at the hard-of-hearing experimental class recently instituted by the London County Council seems to indicate this. It is important that these classes should be held in hearing schools in order that the scholars should not be permitted to mix with the very deaf children of the special schools.

The semi-deaf class comprises those who cannot hear the forced whisper and whose hearing for spoken speech is four feet or less,[9] a comparatively considerable amount of residual hearing when contrasted with the deaf-mute. It is obvious that the range of hearing in these cases will be wide and that the factor of individual mentality will be of even greater importance than in the slightly deaf class. Hence these children will naturally fall into two groups—the better cases and the worse cases. The former, scholars of good mentality, fair residual hearing, and natural or residual speech,[10] would be best educated as permanent units in special classes under teachers of the deaf. It is to these classes that the present experimental hard-of-hearing class, already mentioned, is more nearly approached. These classes should also be held away from a deaf centre to prevent the children attending them from mixing with the very deaf either at work or at play. The very deaf and the totally deaf differ markedly in their method of thought from their more fortunate fellows, and the semi-deaf should, therefore, be made to mix with normal companions whenever it is possible. Moreover, the deaf child is ever ready to pick up the bad habit of signing, even when his hearing defect is of a less degree, and such habits are difficult to eradicate. The child possesses the faculty of imitation even more than does the man, and consequently exercises it whenever he gets the chance. It is thus that stuttering may arise, and one signer in an oral class of deaf children will readily find willing imitators.

The worse cases, with more marked degrees of deafness of doubtful mentality, or with defects of speech ("semi, mute"), are on the borderland beween the better cases of the semi-deaf and the very deaf. They would probably be taught more advantageously in special classes in a deaf school under the oral system, *the study of each individual child being of paramount importance*. Here comes in the great question of day schools *versus* residential schools, a question upon which opinions have been much divided. In this matter, as in most others, the extremist is wrong; what is required is to take a middle course. Where there is no deaf day school near at hand, as in the country districts, it is better for the deaf child to go to a resident institution than not go to school at all. Resident institutions have their uses, and for those deaf children who are defective they are no doubt excellent. But whenever it is possible for a normal deaf child to remain with his parents (provided they are worthy to have him in their care) that is the best environment for him to be in. When this is not possible he should be boarded out with a good foster-mother. Residence in an institution means less opportunity for the deaf child to mix

[7] Transactions of the Second International Congress on School Hygiene, London, 1907, vol. ii., p. 828.

[8] THE LANCET, Sept. 10th, 1910, p. 781.

[9] I must here remark that the distances proposed in this article must not be taken as final; further experience, and especially that gained by the working of this or an analogous system, will be certain to modify them.

[10] This natural or residual speech would, without special training, deteriorate.

with the hearing environment, which is so important a factor in the success of the oral system. Another point in this question is, again, the necessity for studying the deaf child as an individual; the defective deaf are certainly more fit for residential institutions.[11]

With the worse cases of the semi-deaf, like those of the totally deaf, no modification of ordinary hearing school methods is of the slightest use: they must be educated in a special day school or residential institution. Under present conditions the worse cases of the semi-deaf must be taught, as, indeed, they are, with the totally deaf. It is quite likely that it may be found possible later to classify both classes and rearrange the educational methods applied to them to better advantage. If the totally deaf and the worse cases of the semi-deaf fail under the oral method they must not be allowed to influence the oral successes, but must be transferred to a school where the manual or combined systems are taught. Every oral failure is a source of danger to the oral successes, and the sooner this is recognised in deaf schools the better. The oral failure uses signs, and for this reason contaminates the oral success. This matter I have already touched upon in my first article. That is why I am strongly opposed to the institution of a "duffers" class in a normal deaf school. If it is proved that a child, after thorough and careful trial, will never attain to speech, he should be transferred as soon as the fact is recognised beyond a reasonable doubt to a school where systems other than oral are practised. The late Mr. van Praagh, whose experience was very great, once stated that every deaf child, provided that he was not mentally defective or imbecile, could be taught by the oral system, and no doubt this is true provided all obstacles to success are eliminated. It is with a view to the recognition and elimination of these obstacles that the system of classification, which may at first sight appear somewhat elaborate, here suggested has been framed.

A careful study of the mental capacities of the totally deaf and of the worse cases of the semi-deaf is highly important, and those whose defects are pronounced cannot, I think, be properly taught in a day school. In dealing with borderland cases one has to take into account the mental attainments of every child and endeavour to classify him for educational purposes, so that his teacher may get the best out of him. This is by no means an easy thing to do, and it would probably be made easier if the child were got to school at an earlier age. The slightly dull child who may be left hopelessly behind in a class of deaf scholars of normal mentality may appear quite bright in one of the mentally defective deaf because he is *unioculus inter cæcos*, and he is not receiving his full educational rights if he is placed in either class. The mentally defective deaf should be placed in a residential institution, to be got at by methods adapted to each individual case by teachers of proved experience. This is one of the real uses of a resident institution. At the same institution the dull or backward child, the one just referred to as on the borderland, might attend special classes as a day scholar. There are some such children who would so benefit by such a class that they might later be saved to the oral method and be allowed to return to the normal deaf school.

Normal semi-deaf or totally deaf children are better in day schools provided their parents feel their responsibilities sufficiently to help in their education at home, and this home education, in the hands of good parents who loyally help the teacher and the doctor, is of very great value. Where the parents are neglectful and unmindful of their duties, or alcoholic, or responsible for bad school attendance, and where the home surroundings are morally bad, then the child should, for his own sake and for the sake of his future as a citizen (for the State should come, without compromise, before the parent in such cases), be taken from the parents and either placed in a residential institution or, preferably, boarded out with a good foster-mother. I do not write thus without good reason. I have met with cases in which the scholar's whole future, educationally and morally, was being blighted by the unwholesome effects of bad home surroundings and alcoholic or immoral parents. I have seen children making good progress taken away hopping or fruit-picking, or used for purposes of begging, and returned at long intervals to school with all the knowledge they had so laboriously acquired forgotten and wiped out. I have seen children kept from school because the only clothes they had to wear had been taken away and pawned by the parent for drink. The difficulties which lie in the way of the educational authorities in such cases are great, and will remain so as long as the great fetich of the "liberty of the subject" is worshipped, forgetful that liberty really means, as Burke once put it, "equal restraint for all." The machinery that should correct such abuses moves so slowly, and there are so many loopholes for the wrong-doers, that much valuable time is lost before such cases can be remedied, but a very great deal could be achieved if the Children Act were adequately amended and adequately administered.

At the outset of the deaf child's education the parents should be interviewed, and an endeavour made to impress upon them the necessity for regular school attendance and home educational help; they should be enjoined to coöperate with the child's teachers in giving the oral system every possible chance, and should be warned against allowing home influences to degenerate into the substitution of signs for lip language. Here I may point out that good school attendance means, *for the deaf*, as constant and regular attendance as possible. This is of far greater importance for the deaf than for the hearing child. A loss of one schoolday a week means far more for the former than it does for the latter, for the deaf child under present conditions seems to forget what he has learned more quickly than does the hearing child, probably because his command of language, for want of continuous education through the ear, is much more limited.

The defective deaf (blind and mentally deficient) require very special instruction under highly experienced teachers, such as they obtain in our London County Council Centre at Homerton. The blind need to be taught the Braille method as well as special manual systems of communication, whilst the methods upon which the mentally deficient require to be trained are such as those so well outlined by Mr. F. G. Barnes in his paper read before the Third International Congress on School Hygiene, held in Paris in 1910. A school or institution for the defective deaf must be kept for such cases alone it should not have its classes taken up by the imbecile deaf; such cases contaminate the scholars who are capable of education and take up too great a share of the teacher's time, to no purpose whatsoever.

The system of classification here advocated, and which endeavours to give to the individual child the highest form of education to which he is entitled, may be tabulated as follows:—

Class of deafness.		Educational treatment.
A. Slightly deaf...	Very slightly deaf ...	Hearing school, preferably front row.
	Hard of hearing... ...	Hearing school and special classes under visiting teachers of the deaf.
B. Semi-deaf ...	Better cases...	Special classes under teachers of the deaf in hearing school.
	Worse cases...	Special classes in deaf day school.
C. Very deaf (deaf-mute) ...	Oral successes	Special deaf day school or residential school (better boarded out).
	Oral failures	Separate classes of manual or combined system in residential school.
Defective deaf		Special individual systems in residential schools.

In a recent paper written for the Third International Congress on School Hygiene [12] I advocated the commencement of the education of the very deaf at a much earlier age than is at present the case in most countries. My reasons for doing so will be given in detail in the third of these articles, and I am strongly of the opinion that the period of instruction should be made to embrace the life of the very deaf child from 3 to 18 years. I mention this here because I consider that this extended period is a natural and necessary corollary to any system of classification of the deaf for educational purposes. There are very strong physiological reasons why the earlier age is advantageous, and these will be stated later. There are equally strong reasons why

[11] It would be better if they were kept in them permanently.

[12] At What Age should the Education of the Deaf Child Commence? British Journal of Children's Diseases, October, 1910.

control should be maintained until a later age than is at present considered necessary by legislators. To give only two of these: it must be insisted that the deaf child is entitled, and justly, to as much advanced education and to as advanced teachers as possible. We have not yet arrived at the time when every precaution is taken to diminish, by negative and positive eugenics, the number of the congenitally deaf, nor have we reached perfection in the prevention of acquired deafness in children. When so ideal a state of affairs has been accomplished we shall not have so many deaf to educate, but until then we have this great problem of the deaf child to face, and it must be faced squarely and the very best done for them that can be devised—for their sake, for the sake of the State, and for the sake of humanity.

Secondly, under the shorter period, the scholar is removed from the teacher's influence just at the time when that influence is most felt, most required, and most likely to make a lasting impression. The first two years of instruction, from three to five years, should be passed in a preparatory class, where the child's capacity, his mentality, and his chance as an oral success or failure could be ascertained by experienced teachers. Teachers of the highest experience and capacity are most needed for this part of his training. Much precious time could be saved by this arrangement, and each child could be drafted at the age of five years into an elementary deaf school in a better state of fitness for his curriculum.

It will be remembered that in the first of these articles I postulated certain conditions that I considered to be needful for the ultimate improvement of deaf education. The first of these is that discussed in the present paper, the third and fourth may be reasonably noticed now. The need of greater care of the deaf child whilst at school, by care committees and similar means, whereby it can be assured that his attendance at school is regular, his meals are adequate, that he is not neglected or exploited by his parents, and that he is removed from the influence of bad companions and bad home surroundings, is a consideration which hardly requires discussion. Parts of it have already been touched upon, and all I need add is that legislation is urgently needed to ensure greater control over the deaf child, and more people are wanted to take an interest in him. There seems a curious ack of sympathy with the deaf, especially when it is compared with the quantity lavished upon that much happier class of the physically defective—the blind. It seems so difficult to make people understand the position of the deaf child, that he is neither imbecile nor mentally deficient, but simply a normal child deprived of that sense which might be, of all his senses, of the greatest educational value to him. It does not take long to discover from contact with deaf children what a charming and loveable class they are, and I would appeal to the charitable to take up their cause with more vigour than has yet been the case.

The fourth need postulated was the encouragement of the deaf child to mix with hearing people. This would be greatly helped by an extension of the later educational course. The last two or three years, from 15 or 16 to 18, would be occupied in an advanced school where special training would be given in some trade or occupation and where moral training suitable to the more advanced age of the pupil would be made a feature. Possibly it might even be better if the advanced school life should be, as at present, from 14 to 16, scholars from 16 to 18 passing to a college for the deaf, where they could obtain a course of training which should be a modification of the ordinary university life.[13] This could, however, be settled when the extension of the educational age had been secured by legislation. This system, or a modification of this system, is already in vogue in some parts of the United States, where it appears to have been eminently successful.

I feel sure that by some such arrangement as is here advocated the very deaf child would leave his educational courses better equipped intellectually, usefully, and morally than can possibly be the case under present methods. The aim of all education is to fit the child, in the best possible manner, for self-reliant, self-supporting citizenship, and if this is so for the scholar who is fully equipped as regards his senses, it holds good equally for the normal deaf child. I believe that the whole secret of deaf education is to give to the young deaf child that physiological training that his defect has denied to him and whereby he is, at seven years, like a normal child of two in mentality, and to keep him longer at school in order to give him as advanced an education as is possible to equip him for his career in the world in order to remove, or at least to obviate, the handicap which nature has imposed upon him.

In conclusion, I wish to touch upon a matter which is of a very delicate nature, alluded to in the concluding words of the fourth postulate in the first article, "a more careful supervision of religious missions to the deaf." Nothing is farther from my mind than to make any charge of neglect, or to write anything that can reflect in the least degree upon or wound the feelings of any person or persons connected with any particular mission, all of which are conducted by high-minded, disinterested, and, in many cases, self-sacrificing men, actuated solely by the unselfish wish of benefiting the deaf community and ameliorating the conditions under which they live. But these worthy people are too apt to lose sight of other and important considerations in their ardour for their religion. The question is a delicate one and requires careful and tactful handling. The free signing which goes on amongst the deaf-mutes who attend these missions cannot be controlled and those in authority are powerless to prevent it. If any teachers of the deaf read these articles they will fully understand to what I allude, and may, possibly, be prevailed upon to give their own experiences of this matter. The remedy lies, of course, in the better education of the deaf, and the universal encouragement of the oral system among the deaf and the discouragement by missioners of its abandonment after leaving school. Until then, however, I would earnestly advocate that it should be the future care of these missions to regulate their meetings with a view to greater restraint. They should hold different sittings for different sexes (especially when lantern lectures are given), and, an item of equal importance, they should hold different meetings for the old and for the young.

(To be concluded.)

[13] If education commenced at three, instead of at seven, a further modification of what is here advocated would be possible, for, as will be seen in the third article, the effect upon speech and language teaching would be such that the scholars would be much more advanced than they are at the present time. There are, moreover, reasons for believing that a university course in an ordinary hearing college would be more acceptable and more advantageous than the foundation of a deaf university. The Gallaudet University in the United States is a great success, but the alternative would be better calculated to encourage the mixing of the deaf and the hearing.

A CASE OF SUPRARENAL APOPLEXY.

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FOR the clinical details of the following case I am indebted to the house physician, Dr. Norman W. Steinberg.

A male child, aged 8 months, was admitted into the Royal United Hospital under the care of Dr. E. J. Cave on Oct. 30th, 1910, with the history, obtained from the parents, that throughout the morning the child had been very drowsy and had "looked strange," but that he had not seemed to be in pain, had taken nourishment readily, and that the bowels had acted as usual. About 3 o'clock in the afternoon he vomited, and as the baby appeared to be getting worse he was brought to the hospital. Previously the child had always seemed perfectly healthy. He had been breast-fed until three weeks before admission, when a mixture of cow's milk and water was substituted. On account of the parents' conscientious objection the child had never been vaccinated. The mother had had one other child, who died at the age of two years from pneumonia after an illness lasting ten days, and two miscarriages.

On admission the infant was obviously very ill: complexion grey, eyes dull, breathing rapid, shallow, and noiseless; temperature 100·4° F., pulse 140, and respirations 72. Râles could be heard all over the chest, especially at the bases behind. The abdomen was soft and not tender. There were no signs of meningitis, and nothing abnormal was to be seen in the mouth or fauces. Two hours after admission an extensive eruption of purple spots and blotches appeared over the whole trunk, upper arms, and thighs. The temperature had fallen to 99·4°. The child rapidly grew worse,

the face becoming cyanosed, and death occurred at 7.30 P.M., four hours after admission. There were no convulsions throughout.

Necropsy.—The post-mortem examination was made 22 hours later. The body was that of a well-formed, well-nourished infant. It bore no vaccination marks. On the trunk, front and back, and on the limbs down to the elbows and knees, was visible the blotchy purpuric eruption mentioned. The larger patches were dull red rather than purple, and appeared to be somewhat raised. A few small spots were to be observed on the neck and on the face in front of the ears.

The lungs were congested and œdematous. The heart appeared healthy except that on the auricular surface of the mitral and tricuspid valves, close to the free margin, were a few very tiny beady elevations. There were no subpleural or subepicardial petechiæ. The liver was pale; the spleen and kidneys normal. The intestines were pale and collapsed; the mesenteric glands not enlarged. The suprarenal capsules were striking objects, even before their removal from the body; of little more than normal size for a child of this age, they were both of a deep purple colour and evidently the seat of hæmorrhage. The extravasation of blood had taken place into both the cortical and medullary portions, but no bleeding had occurred into the adjacent tissues. Microscopically the structure of the medulla was seen to be completely destroyed and replaced by effused blood. The arrangement of the columns of cells in the cortex could be made out, but the cells themselves had largely disappeared, their nuclei alone remaining, whilst everywhere were to be seen large numbers of red blood corpuscles. All the other organs appeared natural. The spinal cord was not examined.

Cultures taken from the adrenals, from the spleen, and from the cerebro-spinal fluid all proved sterile. No micro-organisms could be detected in films made from the cerebro-spinal fluid and from the interior of the suprarenal capsules. Sections of the suprarenal capsules were stained by Levaditi's method for spirochætæ with a negative result.

Remarks.—Whilst it is not very uncommon to meet with hæmorrhage into the adrenals of stillborn children or of infants dying shortly after birth, and whilst bleeding into these bodies may, rarely, take place in conditions of great venous congestion, it is, with these exceptions, an occurrence which, to judge from the number recorded, is one of considerable rarity.

The case related above appears to form one of a distinct group, examples of which have been described by Voelcker,[1] Still,[2] Garrod and Drysdale,[3] Batten,[4] Andrewes,[5] Talbot,[6] Blaker and Bailey,[7] Graham Little,[8] Langmead,[9] and Dudgeon.[10] Omitting the case of Still, in which miliary tuberculosis also was found at the necropsy, and that of Batten, in which hæmorrhage occurred into one suprarenal capsule only in a boy, aged 2½ years, there remain, including that just described, 15 cases, all infants between the ages of 2 and 15 months, and all of whom died after an illness lasting in the majority less than 24, and in none more than about 48 hours. In all but three a hæmorrhagic rash of greater or less extent was present. Vomiting occurred in 6, diarrhœa in 1, convulsions in 5, and symptoms suggestive of abdominal pain in 3. In several cases signs of bronchitis were present. The temperature—in most between 100° and 103°—in Voelcker's case was 105°, and in one of Graham Little's reached 108° before death. Apart from the lesions of the adrenals and the hæmorrhagic rash, the most constant post-mortem findings have been intense engorgement of the lungs. Blaker and Bailey lay emphasis on hyperæmic swelling of Peyer's patches and of the mesenteric glands, resembling that found in the early stages of enteric fever. Cultures from various organs have in most cases proved negative, but in one of Talbot's a streptococcus was obtained by Drysdale from the suprarenal capsule after death.

The suggestion was made, both by Voelcker and by Andrewes, that theirs were cases of rapidly fatal hæmorrhagic small-pox, and the fact that of these 15 cases only one had been vaccinated, whilst 11 were unvaccinated (the history of the other three in this respect being imperfect), seems to suggest either that there is some relationship between this disease and variola, or that the extent to which vaccination is performed in the country which gave it origin is lamentably insufficient. Since none of these cases seem to have occurred during, or to have been followed by, an epidemic of small-pox, the latter appears the more likely.

Bath.

1 Pathological Reports of the Middlesex Hospital, 1894–5.
2 Transactions of the Pathological Society, 1898.
3 Ibid. 4 Ibid. 5 Ibid.
6 St. Bartholomew's Hospital Reports, 1900.
7 Brit. Med. Jour., 1901.
8 British Journal of Dermatology, 1901.
9 THE LANCET, May 28th, 1904, p. 1496.
10 American Journal of the Medical Sciences, 1904.

CRANIAL ASYMMETRY DUE TO POSTURAL CAUSES.

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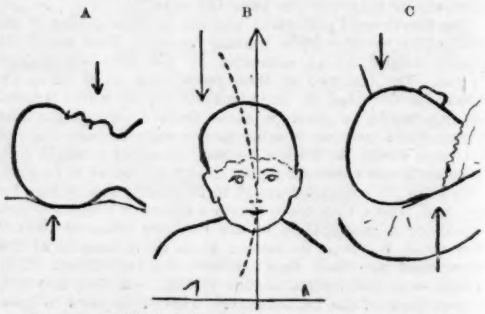
FEW, if any, of us attain to the perfection of bi-lateral symmetry; consequently, in common with the rest of the frame, the two halves of the calvarium are rarely exactly alike—a fact which is of importance only on the occasion of a visit to one's hatter.

The causes of *abnormal* distortion may have been forces acting upon the bones from within or from without, and the earlier in life that they have been brought to bear the greater is their effect, owing to the yielding nature of the young bones. In infancy, too, the attention is drawn most forcibly to cranial asymmetries, for any irregularity in the roof is naturally more obvious when the thatch is thin. Many interesting abnormalities have pre-natal origin, or are due to traumatism in parturition; others arise from cranial or intra-cranial disease. In this short note, however, I am only dealing with posture as a cause of deformity, and more particularly with one characteristic variety.

The effect of posture is, of course, the application of the law of gravitation. Now the position of the normal baby is so frequently varied that gravitation, if it have *any* effect in moulding the cranium, acts symmetrically in the production of a normal skull. When the baby, or the circumstances surrounding it, are not normal, the action of gravity produces variations. A rachitic child, for instance, being soft of bone and inactive muscularly, lies much on its back, and the calvarium is consequently pushed forwards—or rather "upwards," as the child lies. This is one of the factors concerned in the production of the well-known frontal prominence of the rickety head. To be strictly accurate, it is the face and base of the skull which, acted on by gravity, are pulled downwards (backwards) away from the calvarium, which, supported by the occiput, lies on the pillow and can descend no further (Fig. 1 A).

FIG. 1.



Diagrams to illustrate the action of gravity causing cranial asymmetry in A, rickets, B, torticollis, C, an infant nursed at one breast only.

In cases of so-called congenital torticollis, which are probably due to injuries of the sterno-mastoid and adjacent muscles at birth, a marked facial and cranial asymmetry is seen. The face is said not to develop fully on account of pressure on the carotid artery. This may be so; but if a sheet of paper be held in front of the face dividing it vertically into two halves, it will be seen that not only is the affected side smaller, but there is also a projection of the skull-cap and chin towards the same side; a central line drawn down the face will thus be curved with the convexity

away from the contracted muscles (Fig. 1 B, the outline of which is traced from a professional portrait). This, I think, may also be the effect of gravity, acting partly as in the first instance (the child lies more comfortably on the healthy side), in part directly, when the infant is held in the sitting position, and sometimes as will be mentioned shortly.

But by far the most marked examples of cranial obliquity occur as the result of nursing the infant at one breast only. The lop-sided head which ensues is not so generally known as I should have expected. Two patients shown recently at the Liverpool Medical Institution exemplified the deformity well. Both are boys—one aged 5 months, the other 7 months. In one case the mother's left nipple is so depressed that suckling with that breast is impossible; in the other the right breast has never secreted milk. The heads of the two children exhibit a similar deviation (Fig. 2 A); in the case of

FIG. 2.

Reproduction of photographs of infant nursed at right breast only.

the infant nursed at the right breast to the left, in the other to the right. In these cases it is the weight of the brain which pulls the head out of shape (Fig. 1 C). As this weight lies chiefly posteriorly, and also as the arch of the calvarium has firmer support in the frontal region, the greater deformity is at the back of the head, and it is best seen in that aspect (Fig. 2 B).

The commonest reason for suckling an infant at one breast only is an abscess in the other, and one may often astonish an unobservant mother by diagnosing that affection from the appearance of her baby's head. But one must not be too sure. In one case in which I was consulted there had been nothing wrong with the breast, but the child having a slight degree of torticollis found a difficulty in getting his head round to the corresponding breast; so the fault was in the child and not the mother. Consequently, whether the alteration in the position of the head engendered by "congenital" torticollis can of itself give rise to a postural asymmetry or not, it certainly may do so secondarily in the manner described.

In the patient whose photographs are reproduced there is a sort of vicious circle temporarily established at present. The child is beginning to sit up unsupported; the additional weight in the left half of the head causes it to drop over to that side, thus perpetuating the state of affairs which led to this extra weight. With increasing strength this droop will be overcome. It is not shown in the photographs, in which the head is invisibly supported.

I imagine most of these heads straighten themselves when suckling is over. One of the mothers brought me a daughter, aged 6 years, whose head was similarly affected in infancy, and, so far as an examination through the shock of hair she possesses can determine, there is no evidence of the condition left now.

For treatment I think it is well to instruct the mother or nurse to counterbalance the too frequent posture of nursing on one arm by carrying the child an equal length of time per diem on the other. As the baby generally sleeps after being fed, this involves trouble, and the direction is rarely followed out. In addition, the mother should be told to be particularly careful while nursing to support that part of the head which sags, rather than to make the carrying point the usual one of the neck and base of the skull. But I have seldom seen much improvement until weaning has taken place.

Liverpool.

A CASE OF RODENT ULCER OF THE THIGH.

BY HERBERT E. FRIEND, M.R.C.S. ENG., L.R.C.P. LOND.,
AND
T. CRISP ENGLISH, M.B., B.S. LOND., F.R.C.S. ENG.

RODENT ulcer rarely affects any part other than the face and scalp. Mr. A. A. Bowlby recorded a series of 66 cases of rodent ulcer, all of which affected the face and scalp, except two which occurred on the nape of the neck and on the back respectively. The following instance in which a rodent ulcer occurred on the skin of the thigh is therefore of great rarity, if not unique.

The patient was a widow aged 68 years. She first noticed a nodule on the outer aspect of the thigh at the junction of its upper and middle thirds in 1874; this nodule was painless and caused no discomfort, but from time to time it broke through the surface and then healed again. It remained in this condition until 1896, when the patient sustained a fracture of the right femur below the surgical neck; the splint, though well padded, caused irritation of the nodule, and a sore of about the size of a pea resulted. During the following years the sore slowly increased in size, and when seen in 1905 was of about the size of a sixpenny-piece. Removal was advised, but the patient would not consent to this. In 1907 the ulcer was again seen, and removal was again advised; the patient was still unwilling to have this done, and as the surface of the ulcer was unhealthy it was cleaned with applications of peroxide of hydrogen; now for the first time the edges appeared raised and thickened.

In September, 1909, examination of the ulcer showed that it had increased to the size of a crown-piece; it was somewhat irregular in outline and moderately painful, its edges were rolled over and indurated, and there was an island of cicatricial tissue near its centre; there was no enlargement of the lymphatic glands. The patient was willing to have the application of X rays, and these were used once by Mr. Cecil Lyster; but when it was pointed out to her that the use of this treatment would have to be extended over a long period, and that the growth was now in an active state, she at last consented to its being excised. This operation was performed on Oct. 8th, the anæsthetic being administered by Dr. F. W. Cock. The growth was freely removed by elliptical incisions which were carried down through the deep fascia. The wound healed well. The ulcer and the surrounding tissues were examined microscopically by Dr. R. Salusbury Trevor, pathologist to St. George's Hospital, who reported that the appearances were typical of rodent ulcer.

The scar remained sound until October of last year, when the patient noticed a little thickening near its lower end. This thickening slowly increased, and when seen by us in November was a small flat-topped nodule lying just beyond the lower end of the scar, obviously a "recurrence" of the growth. This nodule and a large area of the surrounding skin were excised on Nov. 25th.

The following authorities have recorded cases of rodent ulcer which have been observed in places other than the face and scalp: H. Betham Robinson reported one occurring over the male breast [1]; A. A. Bowlby, an enormous ulcer on the back in addition to five on the face and one on the nape of the neck [2]; J. Hutchinson, jun., a case in which there was one on the forearm and one in the groin [3]; T. S. Pigg, a case in which there was one in each groin [4]; H. D. Rolleston, an ulcer near the umbilicus [5]; Radcliffe Crocker mentioned one just above the sacrum and one in the groin [6]; and Colcott Fox describes an ulcer over the sternum.

Examples of rodent ulcer on the trunk are not very uncommon. Mr. G. Lenthal Cheatle, in a paper on the Incidence of Cancer,[7] records 17 cases which he had been able to collect. These cases are illustrated by reproductions of the original photographs and drawings, and the ulcers occurred in the following positions: back of shoulder

[1] Transactions of the Pathological Society, vol. xlv., p. 147.
[2] Ibid., vol. xlv., p. 159.
[3] Ibid., vol. xlviii., p. 224.
[4] Ibid., vol. xl., p. 300.
[5] Ibid.
[6] Diseases of the Skin.
[7] Brit. Med. Jour., April 29th, 1905.

(J. H. Sequeira); back of shoulder (Sir J. Hutchinson); back near mid-line (A. Reid); scapular region (Sir J. Hutchinson); scapular region (A. Reid); lumbar region (Sir Victor Horsley); abdominal wall (Sir Victor Horsley); over spine (W. A. Pusey); coccygeal region (Norman Walker); sternal region (Dr. Mill); axilla (McAdam Eccles); anterior scapular region (Sir J. Hutchinson); mammary region (Dr. Jacobs); front of chest (J. H. Sequeira); abdomen (Sir J. Hutchinson); and groin (Royal College of Surgeons of England Museum).

Mr. Cheatle tells us that since the publication of this paper he has come across four other instances of rodent ulcers occurring on the back in the areas supplied by the internal divisions of the posterior branches of the dorsal nerves.

The list of cases which has been given could be added to considerably, but it will serve to indicate the distribution of those ulcers which do not occur in the usual situations.

NOTES ON A CASE OF RETENTION OF URINE.

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I REPORT the following case on account of (1) the extremely large quantity of urine retained in the bladder without rupture; and (2) the rapid recovery of vesical tonus after such an enormous distension.

The patient, a married woman, aged 37, was admitted to hospital with the following history. She had apparently been quite well until 14 days previous to admission, when she complained of severe dragging pains in the lower part of the abdomen, accompanied by nausea and vomiting. She noticed also that she had some difficulty of micturition, but passed a normal quantity of urine. She recovered in 24 hours and was able to do housework. Eleven days later the pain recurred and was very severe, and she had great difficulty in passing urine, and then only a very small quantity. She also noticed that the abdomen was getting larger and on this account called in a medical man, who ordered her to hospital.

Upon admission to hospital the patient was in a comatose condition; pupils contracted, equal, and reacted to light. She moved slightly on being spoken to loudly, but did not understand, and was very irritable on being moved. Breath very offensive; skin cold and clammy; pulse feeble and thready, rate 138; temperature subnormal; respirations shallow and sighing.

Upon inspection of the abdomen a large tumour was seen completely filling the hypogastric and umbilical areas, being rather more prominent on the right side. The limits of the tumour were well defined and it was arising from the pelvis. On palpation the tumour was quite hard. The upper level lay midway between the umbilicus and sternum, 1½ inches to the right of the middle line; the tumour was slightly moveable, but no fluid thrill obtained. The tumour was dull to percussion; the flanks of the abdomen and the side of the pelvis were quite resonant. Vaginal examination revealed a lax vagina from old ruptured perineum not repaired. The arch of the pelvis was distinctly felt, no bladder seeming to intervene. Just within the reach of the finger was a mass pressing anteriorly which felt like a soft cervix, but difficult to make out with certainty. The vaginal vault was capacious, and occupying the pouch of Douglas was a hard mass with definite limits and probably connected with the uterus. Per rectum, about two inches from the sphincter, there was a large tumour, palpable, hard but resilient, slightly moveable, which lay in the hollow of the sacrum. It was possible to feel the sacral promontory above the tumour, and the tumour was completely incarcerated in the pelvis, and was probably a retroflexed gravid uterus. This tumour was quite distinct from the abdominal tumour.

A catheter was passed with difficulty, the urethra being lengthened. A stream of urine began to flow under very high pressure. This was quite clear and not offensive; 166 ounces were withdrawn. Urine was of specific gravity 1030, acid; no albumin, sugar, or pus. On examining the abdomen the original tumour had quite disappeared. An attempt was made to reduce the pelvic tumour, but this was impossible. An anæsthetic was administered, and with two fingers in the rectum the uterus was replaced above the promontory, and now lay at the level of the umbilicus. A Smith-Hodge pessary was inserted.

The uræmia was now treated by saline infusion, injection of digitalin, calomel, and warmth applied to the skin. A catheter was passed four-hourly, and at first passage 56 ounces of urine were withdrawn. The general condition gradually improved; bowels acted, patient perspired freely, and consciousness returned, though some delirium was present. Forty-eight hours after admission she passed urine normally and became quite conscious. On examination of the abdomen a pregnant uterus was palpable at the level of the umbilicus; nothing else abnormal. Seven days after admission the patient was out of bed, feeling quite well and wearing the Hodge pessary, which kept the uterus in normal position. She had no trouble or difficulty with micturition and the urine was normal in quantity and in every other way. She was discharged quite cured 14 days after admission and advised to wear the pessary for at least two months.

I beg to thank Dr. G. H. Hatton for supervising the notes of this case and allowing me to publish the same.

Stoke-on-Trent.

INFANTILE DIARRHŒA.[1]

BY WILLIAM TIBBLES, M.D. CHICAGO (HON. CAUS.), L.R.C.P. EDIN., M.R.C.S. ENG., &C.

BREAST-FED children seldom or never suffer from diarrhœa. It is a consequence of artificial feeding. The causes may be classified as follows: Autogenetic: (1) gastro-enteric catarrh, (*a*) acute, (*b*) chronic; (2) intestinal fermentation; (3) toxæmia. Heterogenetic: (4) mechanical irritation; (5) nervous influences; (6) drugs; (7) improper feeding; (8) bacterial infection.

Catarrhal diarrhœa is the ordinary looseness of the bowels which affects many infants in early life, especially during dentition.

Mechanical irritation is the cause of diarrhœa resulting from attempts to feed children with bread, barley flour, oatmeal, and proprietary foods containing much starch. In older children diarrhœa often follows the consumption of partly cooked cereals, fruit containing seeds (strawberries, currants, gooseberries), dried fruit (currant cake, seed-cake, &c.), green vegetables (boiled cabbage, cauliflower, celery, lettuce, watercress), all of which act virtually as foreign bodies, irritate the mucous membrane, cause increased peristalsis, and sometimes a catarrhal inflammation of the mucosa.

Nervous influences are a frequent cause of diarrhœa—e.g., when the surface of the body is chilled, or when the ganglionic system is disturbed by excessive heat, fatigue, exhaustion, fear, or excitement. In very young children coldness of the feet is a very common cause of stomach-ache and looseness of the bowels. Many instances of diarrhœa are characterised by an exaggerated peristalsis. In such cases taking a meal, a chill, fright, or excitement will immediately start a violent peristaltic action, in consequence of which the food is hurried along the alimentary canal and undigested food appears in the fæces. This is often called lienteric diarrhœa.

The effect of drugs needs scarcely be mentioned, except to remind you that many drugs are excreted by the mammary gland. An aperient will affect the child through the mother's milk. In the same way cabbage, cauliflower, pickles, stewed prunes, and other fruits consumed by the mother will affect the nursing child.

Diarrhœa due to the food of the infant.—(*a*) It may arise from an excess of casein or an inability to digest it; the curd acts as a foreign body and sets up diarrhœa by mechanical irritation, or it undergoes putrefactive decomposition and gives rise to a toxæmia of which the diarrhœa is a symptom.

(*b*) It may arise from an excess of carbohydrates, especially maltose from the malted foods of commerce.

(*c*) It may arise from an excess of fat, especially the fat of cow's milk. The scientific basis of the requirement for plenty of fat in the child's food is beyond dispute. But it

[1] A paper read before the Nottingham Medico-Chirurgical Society on Nov. 15th, 1910.

must be digestible fat, such as that of human milk, fresh cow's milk, or gravity cream. The food of infants from birth to 6 months should contain 4 per cent.; from 6 to 9 months, 4·5 per cent.; from 9 to 12 months, 4·0 per cent.; and from 12 months onwards, 3·5 per cent. of fat. It is evident that diluted cow's milk does not contain the required proportion, and naturally we recommend the addition of cream. This additional fat has the effect of preventing the aggregation of casein into large masses of curd, and rendering the milk more easily digested. It has the further effect of increasing the weight of the child, improving the nervous system and the condition of the blood-making cells in the marrow of the bones. But occasionally infants cannot digest food containing more than 1 per cent. of fat from cow's milk; it gives rise to indigestion, fat diarrhœa, acidosis, and convulsions. The normal fæces of the breast-fed child may contain some fat. But the fat of cow's milk, consisting of much larger globules, is less easily digested than that of human milk, is not so readily saponified and absorbed.

The difference in the size of the fat globules of human milk, milk fresh from the cow, and in gravity cream is very great. But the difference between the fat globules in human milk and in separator cream is far greater. The act of centrifugalising the milk, in order to separate the cream sold in shops, breaks up many of the milk globules; they become aggregated together and form tiny particles of butter. The emulsion is more or less destroyed. Many children cannot digest such cream, vitality languishes in consequence of the deficient absorption, the oxidative processes in the body fail, and the undigested fat causes diarrhœa. The disturbance of the digestive processes leads to the formation of oxybutyric acid and acidosis. As a further result there is an increased destruction of protein in the organism to supply energy, while the imperfect nitrogenous metabolism leads to the excretion of ammonia.

Diarrhœa due to infective causes.—This form of diarrhœa is most prevalent in the summer time, and hence is called "summer diarrhœa." The predisposing causes are the age of the child, its constitution, bad feeding, and bad environment. Given one or more of these predisposing causes, a slight exciting cause will start the diarrhœa. The lesions in the intestines are slight and bear no relation to the severity of the illness. The chief symptoms are due to the absorption of toxins in the food or produced in the alimentary canal by bacterial decomposition. One of the most striking features is the prevalence of the disease in hot weather. An epidemic does not begin until the mean temperature of the atmosphere is 60° or 61° F., and remains so for several days (four to eight days). Neither the humidity of the atmosphere nor the rainfall appears to have much influence upon the progress of the epidemic or the mortality. The epidemic begins towards the end of July, is in full force throughout August, and lasts well into the third week of September. The mortality is highest during the first weeks of the epidemic because very few delicate infants are able to withstand the first month of great heat.

But heat alone is not sufficient to give rise to an epidemic. It is of infectious origin. The temperature which is necessary for the production of diarrhœa is the same as that most suitable for the activity of bacteria. The disease is most common amongst recently weaned children or those fed wholly or partly on cow's milk. Cow's milk ordinarily contains an enormous number of bacteria, and is an admirable medium for the culture of various pathogenic bacteria. The infection which causes diarrhœa may be of two kinds.

(*a*) *Autogenetic*, resulting from the normal bacterial flora of the intestines becoming pathogenic, the change in the action of the bacteria and the nature of the products being dependent upon the altered conditions in the alimentary canal. We have as a result a severe gastro-enteric intoxication which is not always distinguishable by its clinical signs from acute indigestion. As a rule, however, the temperature is higher, the nervous prostration is greater, the stools more liquid and offensive; and the disease is epidemic.

(*b*) The *heterogenetic* form of diarrhœa is far more fatal. It is due to the introduction of bacteria with the food, usually milk. The bacilli are streptococci, staphylococci, colon bacilli, the proteus, the bacillus of Shiga, and the bacillus cyanogenus. There are several clinical types. The term "cholera infantum" is only a generic name, and not a very satisfactory one. The clinical type of the disease, however, may depend less on the variety of the bacteria than on other conditions, such as the state of the mucous membrane or the resisting power of the child's organism.

The peculiar symptoms of the disease are due to absorption of the toxins produced by the bacteria. These substances create a profound impression upon the heart, the nerve centres, and especially the vaso-motor centres. A child previously healthy begins with a rise of temperature a few hours before the vomiting and purging commence, or these symptoms may occur simultaneously. The vomit consists first of food, then of mucus and bile; vomiting may subside and begin again after the administration of food or drink. The stools are abundant, fluid, and frequent, being first brown or yellow, then greenish-yellow, and finally they become watery or serous—rice-water stools. The temperature in mild cases is 102° or 103° F., in more serious ones 104° or 105°, and in fatal cases it often rises to 107° before death. The pulse is rapid, feeble, irregular, and finally almost imperceptible. The respiration is irregular, frequent, or stertorous. The eyes sink into the orbits; the features become sharpened and have an expression of anxiety. The child may be fretful and restless at first, but after a time, especially in fatal cases, there may be convulsions, stupor, or coma. Among the most important clinical signs are the high temperature and the loss of elasticity of the skin, and unless an improvement in these signs can be caused the probability is that the child will die.

Treatment.—(*a*) The *vomiting* may be relieved by lime-water, milk of magnesia, a mustard plaster over the epigastrium, a few doses of ingluvin or calomel, or the subcutaneous injection of 1-100th grain of morphine for a child of 6 months, or 1-50th grain of morphine and 1-600th grain of atropine for a year-old child, repeated in an hour. Washing out the stomach is also a valuable proceeding.

(*b*) *Purging.*—Astringents are of little value in these severe cases, especially while the toxæmia and high temperature exist. Should the purging continue after the temperature has fallen to nearly normal, bismuth, aromatic powder of chalk, cinnamon, tannigen, and other astringents may be used. During the acute phase of the disease an attempt must be made to stop the septic process by other means. But I doubt whether we can safely give to a child enough antiseptic to sterilise even a part of the alimentary tract. I think the best way of eliminating the bacteria is by the administration of purgatives and by securing an absence of the nutritive substances on which they flourish so freely. But I always give drugs which tend to reduce the septic conditions—e.g., calomel 1-6th grain, pulvis ipecacuanhæ 1-6th grain every two or three hours; or resorcin 2 grains, tr. opii ½ minim, tr. cardamomi co. 5 minims every two hours. Salol, ½ grain for a child of 6 months, and 2 grains for a child a year old, or beta naphthol, ¼ grain, every two hours, are useful remedies.

(*c*) The *depression* must be fought by the administration of brandy, champagne, musk, camphor, or ether. If they are vomited when administered by the mouth, similar remedies should be given subcutaneously—e.g., ½ minim of liq. strychniæ and 5 minims of ether every hour. A mustard plaster applied over the cardiac region is useful. The subcutaneous injection of half a pint of normal saline solution into the tissues of the buttocks or abdominal wall is valuable; it must, however, be injected very slowly, the fluid being allowed to find its way into the subcutaneous tissues by gravity rather than by pressure.

Dietetics.—(*a*) *Prophylactic:* Encourage breast-feeding. Avoid weaning breast-fed children in the summer-time. Bottle-fed children should have pure milk made into mixtures of a proper composition and suited to their age. Milk should be filtered through cotton-wool. Avoid improper foods, especially excess of casein and malted foods. Overfeeding must be avoided as carefully as improper feeding. Children become thirsty in hot weather, but they should not be given more food on that account; they should be given plain boiled water or distilled water to quench their thirst. Other prophylactic measures consist of scrupulous cleanliness, especially of the napkins and clothing; protection from flies and from sudden changes of temperature. A thin flannel (not flannelette) garment should be worn next to the skin to protect the abdomen from chill. The feet should be covered. Fresh air and sunlight are essential.

(*b*) *Remedial: Breast-fed children* should be kept from the breast so long as vomiting occurs. They may be fed with a little albumin-water, barley-water, or whey, and stimulants if they seem desirable. After 24 hours' rest of the stomach it is usually safe to resume breast-feeding gradually; at first allowing the child to suck for only two or three minutes at a time, by which means he will get one-fifth to one-fourth the usual amount of milk. He should be fed with albumin-water, whey, or barley-water, with a little meat juice, every two hours until a considerable progress towards recovery is made.

Artificially fed children.—Stop all ordinary foods until the vomiting ceases, usually giving a little barley-water or plain boiled water. When this is retained begin to feed cautiously with egg-albumin and lemon-water, whey, white-wine whey, buttermilk, chicken broth or veal broth, a teaspoonful every quarter of an hour. We are cautioned against the use of meat extracts because they have a tendency to increase the diarrhœa. But there are cases where the stimulating effect of creatin is valuable; and, where the child does not react with egg-albumin or whey, I do not think we can do any harm by giving chicken or veal broth, Valentine's meat juice, bovinine, Brand's essence, or hippi in small doses. Albumin water is insipid, but a few drops of bovinine, Valentine, or hippi will improve the flavour, and give to it stimulating properties which are lacking. Children 4 or 5 months old may have a little panopepton or beef-jelly (Mosquera's); children from this age onwards may have starch emulsion (arrowroot being preferable) and white of egg, which is useful in assisting to check protein decomposition and a persistent diarrhœa.

As soon as the acute stage passes off—which is known by the cessation of the vomiting, moderation of the diarrhœa, and reduction of the temperature—we may give dextrinised farinaceous foods, such as Mellin's, with barley-water and whey, or a little cream. Whey and cream mixtures are now very useful; egg-mixtures are especially valuable; and koumiss or fermented milk can be given. In these foods the protein differs from ordinary casein.

Nutrients per cent.	Protein.	Fat.	Sugar.
Whey (casein 0·25, albumin and globulin 0·75%)	1·00	1·10	4·5
Whey 19 parts, cream 1 part	1·00	1·8	4·1
„ 10 „ „ 1 „	1·10	2·8	4·9
„ 5 „ „ 1 „	1·25	4·0	4·8
Peptonised milk (casein 1·84, peptones 1·76%)	3·6	4·0	4·5
Condensed sweetened milk (1 in 8)	1·25	1·31	6·4
Yaourte or leben (lactic acid fermentation)—			
Casein 3·25, peptones 0·35%	3·6	3·5	2·0
Koumiss—			
Entire milk—casein 2·44, albumin 0·5, peptones 0·26	3·2	1·9	2·5
Skim milk—casein 2·5, albumin 0·5, peptones 0·35	3·35	0·8	2·6
Egg mixtures—			
White of 1 egg, whey 5 oz., sugar ½ oz.	3·1	1·04	5·3
1 raw egg, whey 7 oz., sugar ½ oz. ...	3·24	2·9	6·8
White of 1 egg, water 5 oz., sugar ½ oz., ½ yelk of 1 egg, meat-juice 5 drachms ...	3·5	1·29	7·0
Buttermilk	3·8	1·28	3·3
Buttermilk 10, water 10, sugar 1, cream 1 part	1·9	1·4	6·6
Buttermilk 10, water 10, sugar 1, cream 2 parts	2·0	2·1	6·5
Buttermilk 10, water 10, sugar 1, cream 3 parts	2·1	2·8	6·3
Chicken broth (contains extractives) ...	3·6	0·2	—
Veal broth (contains extractives and gelatine)	2·7	0·3	—
Home-made beef-juice (contains extractives)	2·9	0·6	—

As the diarrhœa passes off we must consider, if the food has been at fault, how to correct the error. If the fat has been in excess of the child's ability to digest and metabolise it owing to defective assimilation or oxidation, reduce the proportion of fat in the food. Avoid cream mixtures in such cases. Give white of egg and whey, condensed milk and whey, Mellin's food and whey or milk, extract of malt and milk, gradually increasing the strength of the food and adding gravity cream, but not separator cream. If malted foods have caused the diarrhœa avoid them and malt extract also. If casein has been in excess of the child's digestive capacity give egg-mixtures, whey mixtures, cream mixtures, extract of malt and milk. If diluted milk must be used 1 grain of sodium citrate to 1 ounce of food will prevent the formation of curds; or a teaspoonful of extract of malt in ¼ pint of warm milk will in 10 minutes alter the casein so that it will be precipitated in fine flocculi nearly as small as those of human milk, and cream can be added to raise the percentage of fat.

Nottingham.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

PATHOLOGICAL SECTION.

Asphyxia under Chloroform.—Lamarckism and Callontics.—Action of Pro- and Anti-thyroid Preparations.

A MEETING of this section was held on Feb. 21st, Dr. F. W. MOTT, the President, being in the chair.

Dr. A. GOODMAN LEVY (Research Laboratories, University College Hospital Medical School) said that his research was undertaken to investigate the effect of asphyxia in animals under the influence of chloroform in view of a prevalent tendency to attribute a lethal importance to a condition of partial asphyxia induced accidentally in the course of chloroform anæsthesia and termed "intercurrent asphyxia." He considered that under chloroform the cardio-inhibitory reflex was obscured or suppressed by complete asphyxia, and that in conditions of partial asphyxia under chloroform the cardio-inhibitory reflex was variably affected, for it might be either diminished or increased in an apparently fortuitous manner, the intensified form of reaction being, on occasion, of a marked and significant character. Also under ether partial asphyxia affected the cardio-inhibitory reflex in a similar diverse fashion, and the intensified reaction would appear to be no less frequent than under chloroform. In relation to the incidence of fatal suffocation arising from an accidental complete occlusion of the air passages during anæsthesia, it had been stated by Richet in 1895 that chloroformed animals supported asphyxia as well as, if not better than, animals which had not been anæsthetised, and that it was always possible to restore them some minutes after cessation of respiration. That observation did not accord with his (Dr. Levy's) experience, for he had met with cases, both under chloroform and under ether (but more frequently under the latter), in which he failed to restore the heart beat. That subject was, he thought, worthy of investigation, for some of the asphyxial symptoms were not strongly evinced under chloroform, and so there must exist a suspicion that the nature of a suffocative process might not be properly recognised. The following considerations had to be borne in mind in connexion with that matter; that in complete obstructive asphyxia there was a greater deprivation of air than in the case of any of the non-obstructive experiments he had performed, and hence the cessation of respiration came about within a shorter period. Asphyxial spasm was practically suppressed at any higher concentration of chloroform than 1 per cent. The mechanical influence of the asphyxial respirations might induce an earlier fall of blood pressure than in the non-obstructive form of asphyxia. His remarks were, of course, merely suggestive and did not lead to any positive conclusion in respect of the possibility of death from suffocation under chloroform in ordinary clinical conditions. In conclusion, Dr. Levy said that so far as the scope of his experiments extended they did not afford any evidence to justify the assumption that asphyxia, whether partial or complete, was a more serious complication in any important respect under chloroform than under ether

narcosis. In both cases asphyxia was evidently undesirable, and of the two there was evidence that asphyxia under ether was the more active in affecting the respiratory centre.

Mr. S. G. SHATTOCK, in a communication on Lamarckism and Callosities, said that there was a maxim in the investigation of biological problems that they were best approached by a study of their simplest expressions. The question whether acquired characters were transmitted was one still under discussion. It was necessary to define what was meant by acquisition. The acquirement of secondary or external sexual characters at puberty was not a proper instance of it; these were delayed characters only. The term must be limited to an acquisition which was under control, so that the circumstances which called forth such acquisitions being prevented from acting the acquisitions would not arise. That was essentially Lamarck's position. Leismann's category comprised precisely such characters, overgrowth of parts from increased use; atrophy from diminished use; changes due to climatic influence; mutilation. Even in the blind fish among the deep-sea fish from the *Challenger* dredgings it was unproved that the transmitted want of the eyes had resulted from an atrophy acquired by disuse, for such fish were possessed of a phosphorescent organ in the neighbourhood of the eye, the growth of which, Mr. Shattock suggested, was probably correlated with the disappearance of the eye, as the gills of the tadpole disappeared with the growth of the lungs. In regard to overgrowth from increased use, he took the case of the well-known callosities on the sternum, knee, carpus, and other parts of the camel; no simpler example could be given of overgrowth due to increased exercise. The callosities were present on every camel, whether bred in a menagerie or under natural conditions. Were they present at birth? He had critically examined into that in specimens especially obtained from Cairo. In the full-term fœtus there was absolutely no trace of want of hair, or any epidermal thickening in a single one of the proper positions. The character, simple as it was, was not transmitted in spite of its universal and long-continued acquirement; all that was transmitted was the capacity to acquire it should the external conditions come into play. The gluteal callosities in the baboon and certain other monkeys were of a more ambiguous kind. Those were present at birth, but in a certain sense only. He had studied those histologically in the Guinea baboon and in macacus at birth. The skin was quite hairless at birth, but it was particularly thin and devoid of papillæ and glands; the epidermis over it was no thicker than in the loose piliferous skin around. The thickening of the epidermis of the palm and sole of the baboon, &c., at birth was due to the abundant development of papillæ, the intervals between which were filled with it. Those parts were essentially tactile areas, adapted in the first place for arboreal progression. The hairless gluteal areas were not so. By use the epidermis over them became notably thickened; yet that being a proper acquisition from use, was not transmitted. Mr. Shattock provisionally suggested that the thinly skinned hairless districts were related to cutaneous scent gland areas, of which they might be vestiges. Such cutaneous glandular areas were largely found amongst antelopes though not gluteal; in some cases the glandular patch was also piliferous, in others it was bare, and in yet a third there was a thinly skinned, smooth, naked area, the glandular zone being around that. Such a disposition suggested that the hairless area in the monkeys was related to a peripheral glandular zone, and that the hairless area in question was not essentially due to the commonly supposed cause—viz., the sitting attitude adopted by apes; the hairs were not worn down as in the camel; they were congenitally absent.

Mr. W. EDMUNDS read a paper on the Action of Pro- and Anti-thyroid Preparations. He said that it had previously been shown that the administration of thyroideum siccum B.P. caused illness and death in rats, together with changes in the suprarenal glands, and that knowledge was used to test the value of the milk of thyroidless goats in the treatment of chronic thyroid poisoning; as a control the milk of a normal goat was used; it was found that the rats died sooner when fed on the thyroidless milk than with normal milk. It was pointed out that that could be explained by the operation of thyroidectomy on the goat causing a tendency to myxœdema, which might give rise to an antimyxœdemic body, which would be a pro-thyroid body and would aid the thyroideum siccum in causing the death of the rat. The thyroid administration caused exophthalmos which persisted after the treatment was stopped.

Dr. B. H. WEDD read a paper on Multiple Submucous Tumours in the small intestine associated with carcinoma of the larynx, and Dr. A. E. BOYCOTT spoke on Uterine Tumours in Rabbits.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases and Specimens.—The Oculo-motor Type of Polio-encephalitis.

A MEETING of this section was held on Feb. 24th, Dr. E. CAUTLEY, the President, being in the chair.

The following cases and specimens were shown:—

Dr. E. BELLINGHAM SMITH: A case of Spasmus Nutans in an infant aged 11 months. The movements, which were side to side, were first noticed two months ago and were followed in a week by nystagmus. The movements were of only a few seconds' duration and tended to recur every few minutes if the head was unsupported; recently they had become less frequent. They ceased when the child was lying in its cot. The nystagmus was horizontal and more marked in the right eye than the left; it was fine and exceedingly rapid. There was originally a convergent strabismus, and twitchings of the left hand were said to occur.

Dr. J. PORTER PARKINSON: A case of Congenital Dilatation of the Colon in a girl aged 6 years. Except for constipation and occasional colic the child had been healthy from birth. There was no history of consumption or syphilis in the family. The girl was healthy looking and not in the least anæmic. The heart and lungs were normal except for displacement of the diaphragm upwards, which caused the heart's apex to be displaced into the fourth space, and compressed the basis of the lungs. The abdomen at first was greatly distended, measuring 29 inches in circumference, and peristaltic movements of the colon were occasionally visible. It was not tender and was generally resonant. Enemata had brought away enormous quantities of fæces, and the abdominal distension had diminished, so that the measurement was now only 21 inches. The colicky pains had also disappeared. X-ray photographs, taken after injection of bismuth, showed the great enlargement of the colon, and examination of the stomach by auscultatory percussion and other methods suggested that there was some enlargement of that organ.

The PRESIDENT: A case of Cerebral Athetotic Diplegia in a girl aged 2¾ years. The family history was negative, but the mother was only 19 years of age when the child was born. At four months the patient could sit up and this was an important point in favour of the condition being post-natal in origin. She cut her teeth quickly and was said to have talked well at two years of age. She could walk a little by herself last October, but was never able to walk well as her feet turned out. Nine months ago she had a fall, and about that time her back was found curved. For the last four months she had been kept on her back, and for a month or so she was said to have become "strange in her mind." The child was well nourished, and her mental condition was lively but defective. She laughed and cried without obvious cause and could speak only a few words. Her expression was usually rather a vacant smile. The pupils showed no abnormality and there was no nystagmus. The fundi were normal. The palatal arch was high and the teeth were well developed. The head was asymmetrical, 18½ inches in circumference, and was always held a little to one side as if there were slight torticollis, while the chin was receding. The hands showed ataxic and purposeless movements while at rest and some incoördination on movement. There was a little scoliosis in the mid-dorsal region with convexity to the right. The knee-jerks were exaggerated, especially on the left side. The legs were a trifle stiff, and the feet in the position of equino-valgus, but the deformity was easily reduced. The toes were not hyper-extended. The gait was ataxic and slightly spastic, and the right leg was somewhat flexed at the hip and externally rotated. There was also incontinence of urine. The condition was probably due to structural damage,

possibly by mild encephalitis, of the frontal and parietal regions of the cortex.

Mr. D. C. L. FITZWILLIAMS: A case of Congenital Absence of the Pectoral Muscles in a girl, aged 13 years. Both pectoral muscles were absent on the left side, and the chest was flattened. The ribs could be seen as well as felt on that side in consequence. The anterior wall of the axilla was composed of a prominent fold of skin stretching from the front of the chest to the arm. There was an asymmetry about the shoulders, and the left scapula appeared "winged," although the trapezius and serratus magnus muscles seemed normal. No other abnormality had been found, and no history could be obtained of deformity in the family.

Dr. J. W. CARR: A case of Anorexia Nervosa in a Jewess, aged 10 years. Her previous history was indefinite, but she was said to have been healthy until she was five years old, when she lost her appetite, had pain in the stomach after food, and began to waste. Three years ago she was in the Great Ormond-street Hospital; her weight was then 25½ pounds, and she gained 1½ pounds under treatment, but no cause for the wasting was made out. On admission to the Victoria Hospital last September her weight was 26 pounds, and since then she had gained about 1 pound. The child was excessively emaciated, but could walk with ease. She had no appetite and complained of a lump in her throat, which she said prevented food going down. She had been sick nearly every day since admission, often five or six times, usually very soon after taking food. Her temperature was generally subnormal and there was no evidence of disease in any part of the body. Bismuth and radiography showed that there was no obstruction in the œsophagus and no dilatation of the stomach. The tongue was sometimes much furred and sometimes clean. The bowels acted fairly regularly. The treatment tried had included isolation and massage, faradism, feeding by nasal tube, gastric lavage daily, starvation, and chloretone to produce drowsiness, but the vomiting had continued and the general condition remained unaltered.

Dr. A. W. G. WOODFORDE: Specimens from a case of Delayed Chloroform Poisoning in a boy, aged 9 years, who was anæsthetised for the removal of an enlarged gland in the right side of the neck, there being no other signs of disease. The gland was easily removed, anæsthesia lasting in all about 15 minutes. On recovering consciousness he vomited once and passed a comfortable night. On the following day he vomited twice, but took the usual light diet well and appeared to be in a satisfactory condition. Two days later he had slight vomiting on three occasions. The next morning he ate part of his breakfast and was then noticed to be in rather a collapsed state. He reacted well to simple restoratives and slept heavily during most of the day, but was never unconscious. In the evening he vomited and later became unconscious, respiration ceasing two hours afterwards. With artificial respiration the heart continued to beat for five hours after the breathing had ceased. The urine tested shortly before death contained a large amount of (?) acetone. Post mortem, a gross, fatty degeneration was found in the liver, which was golden-yellow in colour, and in the heart, kidneys, and spleen. A few submucous hæmorrhages of small size were seen in the stomach. Caseating tubercle was found in one of the bronchial glands and also in a mesenteric gland. Sections of the liver, heart, muscle, kidney, and spleen all showed an extreme grade of fatty degeneration.

Dr. E. I. SPRIGGS and Dr. J. B. DE W. MOLONY: A case of Angiomata of the Left Loin and Leg in a girl, aged 4½ years. In the left loin there was an irregularly-shaped tumour extending from the eighth rib to 1½ inches below the anterior superior spine and from the mid-Poupart line to the level of the posterior superior iliac spine. It lay superficial to the muscles and was of a soft doughy consistence, giving no expansile pulsation or thrill. In the skin over the tumour were numerous small nævi. There was a similar but smaller tumour in the adductor region of the left thigh, extending backwards towards the fold of the buttock. On the left leg there were five pigmented swellings along the internal saphena vein, each of the size of a hazel-nut and a small non-pigmented mass on the inner surface of the left foot. There were also numerous small nævi scattered over the back in a more or less symmetrical arrangement. The condition was present at birth. Except for enlarged inguinal glands on both sides the child showed no signs of other abnormalities.

Dr. C. RIVIERE: A case of Congenital Aortic Stenosis in a boy, aged 5½ years, with no history of rheumatism. The patient was of normal size, nutrition, and colour. There were no finger-clubbing and no nodules. On the left side of the neck was the scar of a branchial fistula, which was successfully operated upon three years ago. The heart appeared to be of normal size, but the impulse was forcible. There was a thrill over the aortic area but no pulsation. A rough systolic murmur was audible over the whole heart, but of maximum intensity over the aortic area and conducted a long way into the large arteries. The aortic second sound was clear and there was no evidence of a patent ductus arteriosus. The pulse, 100 per minute, appeared to be rather small and soft.

Dr. J. L. BUNCH: A case of Lichen Spinulosus in a child, aged 2½ years. Some months ago an eruption of apparently blackish specks appeared on the chest and later on the shoulders. The lesions present consisted of fine pigmented spines which could be easily removed and left definite depressions marking the openings of the follicles, some of which had become infected by staphylococci. There were also some lesions in the groin, but the characteristics of lichen spinulosus were not so well marked in that situation.

Mr. S. STEPHENSON read a paper on the Oculo-motor Type of Polio-encephalitis. He drew attention to a group of cases of squint in young children, which he believed to be due to polio-encephalitis. Any of the extrinsic muscles of the eye might be affected, but in two-thirds of his cases the external rectus was alone involved. The intrinsic musculature of the eye was seldom attacked. The squint, which was of paralytic nature, was associated in about one-third of the cases with fits, convulsions, stupor, or other symptoms indicative of an affection of the brain. The common form of encephalic strabismus was apt to be confused with the ordinary form of concomitant convergent strabismus, although the age incidence of the two affections was different. For purposes of differentiation a careful examination of the corneal reflexes was all-important.

The cases and paper were discussed by the PRESIDENT, Dr. H. SKELDING, Mr. FITZWILLIAMS, Dr. L. G. GUTHRIE, Dr. F. LANGMEAD, Dr. C. R. BOX, Dr. C. W. CHAPMAN, Dr. F. PARKES WEBER, Dr. J. BLUMFELD, Dr. BELLINGHAM SMITH, Dr. J. D. ROLLESTON, and Mr. J. P. L. MUMMERY.

OTOLOGICAL SECTION.

Malignant Disease of Lateral Wall of Naso-Pharynx.—Report and Exhibition of Cases.

A MEETING of this section was held on Feb. 17th, Mr. ARTHUR H. CHEATLE, the President, being in the chair.

Dr. EDWARD LAW reported the termination of a case of Malignant Disease originating in the region of the Eustachian tube, early symptoms of which were deafness and discomfort in the ear.

Mr. WILFRED TROTTER gave a brief summary of the principal features of Malignant Disease of the Lateral Wall of the Naso-pharynx, as exemplified in eight cases which he had operated upon, including Dr. Law's patient. In five or six of the cases the tumour was an endothelioma originating about the Eustachian tube, and in them the symptomatology was remarkably uniform. 1. Pain was the first symptom, and lasted some months. The diagnosis at this stage was generally trigeminal neuralgia. 2. Deafness of the type produced by Eustachian obstruction, which in some instances could be temporarily relieved by means of the Eustachian catheter. Failure to give relief had led to further examination and eventually to the discovery of the disease. 3. An abnormality of the soft palate was sooner or later noticeable; this was raised but could not be relaxed on the affected side, owing no doubt to infiltration of the levator palati. 4. In the later stages œdema of the soft palate and adjacent pharyngeal walls appeared. 5. In none of these cases was nasal obstruction a striking symptom. Access to the disease was gained by an osteoplastic operation, the essence of which was reflection of the upper jaw and malar bone in a flap. The base of the skull and lateral wall of the naso-pharynx were thus brought well into view. In some cases it had been necessary to ligature the internal or common carotid artery. The patients usually recovered well from the operation, but none had survived without recurrence of the disease longer than 15 months, a circumstance which emphasised the importance of early

diagnosis.—Mr. HERBERT TILLEY recorded his experiences of similar cases.

Mr. SYDNEY R. SCOTT reported a case of Fistula of the Superior Semicircular Canal on the left side; bilateral radical mastoid operation; instrumental exploration of the left vestibule; total vestibular ablation reactions on left side. One of the principal points of interest was the evidence which indicated localisation of disease without involvement of the cochlea.

Dr. H. J. DAVIS showed: 1. A case of Caries and Necrosis of the Temporal, Parietal, and Occipital Bones following mastoiditis due to scarlet fever in a girl aged 5 years; operation; recovery. 2. A case of Extra-dural Abscess of the Posterior Fossa tracking through the jugular foramen into the neck; sloughing of middle third of internal jugular vein; operation; recovery. 3. A case of Acute Vertigo with repeated falls, always to the left, during the last two months. He asked for an expression of opinion as to whether the disease was labyrinthine, intra-cranial, or due to hysteria. The patient had had mastoid suppuration, complicated by the presence of nystagmus, giddiness, headache, epileptiform fits, and complete left hemianæsthesia. The caloric reactions were negative on the left side, but positive on the right side, and this pointed to an organic lesion.—The case was discussed by several members, who agreed that the evidence pointed to an organic lesion occurring in a so-called hysterical patient.

Dr. W. H. KELSON exhibited a patient with a very Unusual Swelling in the Tympanum.

Dr. DAN MCKENZIE showed a boy upon whom the Complete Mastoid Operation had been performed 18 months previously, the bone forming the so-called facial spur having remained bare ever since that time.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

Malaria.

A MEETING of this society was held on Feb. 17th with Professor RONALD ROSS in the chair.

Professor ROSS read a paper on Some Enumerative Studies on Malaria, Blackwater Fever, and Sleeping Sickness. He said that by enumerative methods he meant the systematic counting of the numbers of organisms present in men or animals infected with given parasites. The object was threefold: first, to ascertain the correlation, if any, which existed between such numbers and the various symptoms; secondly, to determine with more exactness the effect of various therapeutic agencies; and thirdly, to obtain more light upon the general phenomena of the parasitic invasion. The mere detection of parasites was not enough. For further knowledge they must count, measure, and compare, with the ultimate object of learning how to cure. For example, a pigeon contained swarms of halteridium and remained apparently quite well, but the same number of Plasmodium falciparum in a man made him seriously ill. Why and how was this? Again, why did plasmodia appear and disappear so frequently? Why were the sexual forms not always present? Why did the numbers of leucocytes vary? and so on—questions which they could not even attempt to answer without very careful measurements. Again, regarding experimental therapeutics, the method in use was to try whether a given line of treatment abbreviated sickness or prolonged life in a number of cases. By counting the parasites before and after a dose of a drug, however, they could now often obtain a much more exact criterion of its effects. In short, without such countings they could seldom reach any real proof on a number of most important propositions. They might almost say that the history of what was called medical science was largely a history of defeats due principally to the absence, or impossibility, of numerical exactness—to mere qualitative observation and to insufficient sampling. Of course, parasite counts had been made previously, and they had attempted nothing more than making them methodically. Dr. David Thomson had studied 33 cases of malaria—one of P. malariæ, eight of P. vivax, and 24 of P. falciparum—and made daily counts, numbering about 600 altogether. It was found that the numbers of asexual forms diminished gradually after the febrile period until about the middle of the apyrexial interval was reached, after which they increased gradually again, until they became numerous enough to cause a relapse. Dr. Thomson could, indeed, foretell a coming relapse by this gradual increase. There was no sudden and absolute disappearance of the asexual forms during the rally, as they had previously thought occurred. In regard to treatment of malaria, it was shown that quinine was not immediately lethal to all the parasites; but they could not plot the curve showing the progress of reduction. Whether the lethal action of the drug became more and more or less and less marked day after day they could not determine; and yet that was precisely the point requiring determination in order to say how long the treatment must be continued to obtain total extirpation. Methylene blue and soamin had little effect on the asexual forms; but Dr. Thomson thought that the former affected crescents—which remained very refractory to quinine. Referring to blackwater fever, Professor Ross said that one of the cases of malaria suffered from typical blackwater fever while under study in hospital. The patient had three distinctly pyrexial periods, all differing as to three things—plasmodia, fever, and hæmoglobinuria. The first attack showed plasmodia with the characteristic plasmodium fever and no hæmoglobinuria. The second showed no plasmodia, but typical blackwater fever and blackwater. The third showed no plasmodia and no blackwater, but a typical blackwater fever alone. What was the cause of the fever during the second and third attacks? It could not have been the hæmoglobinuria, because that was entirely absent during the third attack. In blackwater fever, therefore, there must be some subterranean factor at work, some process different from the ordinary processes of ordinary malaria. In regard to sleeping sickness a periodic cycle was shown. On Dec. 4th, 1909, a young man, aged 26 years, was admitted into hospital for trypanosomiasis contracted three months previously in N.E. Rhodesia. Regular daily counts of his trypanosomes were commenced by Dr. David Thomson on Feb. 14th, 1910, and quickly revealed a phenomenon not previously clearly observed—namely, that the parasite curve rose and fell regularly about once a week. The discovery of the cycle enabled them to test the effect of treatment with some accuracy. The case was unfortunate because of the great effect of atoxyl on his eyes, but they were obliged to give it frequently nevertheless. On April 5th four grains were injected at the commencement of a parasitic rise; but the rise continued apparently unchecked. They could not say that following doses produced any marked reduction, though, of course, the parasites might have become more numerous without them. At the end of the case the curve presented precisely the same appearance as at the beginning. Quinine, methylene blue, trypan red, succinamide of mercury, izal oil, potassium iodide, trypsin, and amylopsin had no marked success, though the two first-named seemed to benefit the œdema to some extent.

Dr. ROBERT T. LEIPER, helminthologist to the London School of Tropical Medicine, contributed some notes on the Presence of a Lateral Spine in the Eggs of Schistosomum Japonicum; and Dr. N. F. SURVEYOR, professor of bacteriology, Grant Medical College, Bombay, communicated a few observations on the Cultural Characteristics of a Variety of the Streptothrix of White Mycetoma.

CLINICAL SOCIETY OF MANCHESTER.—A meeting of this society was held on Feb. 21st, Mr. J. Howson Ray, the President, being in the chair.—Dr. George R. Murray read a paper on the Treatment of Some Diseases of the Lymphatic Glands and Spleen. In the treatment of Hodgkin's disease he laid stress on the necessity of carefully examining the mouth, ears, nose, and skin, and the insisting on the avoidance of all mental and bodily strain. The ordinary lines of treatment by drugs he referred to, and discussed the advantages and disadvantages of surgical treatment—removal of enlarged glands—and treatment by X rays. His experience of surgical treatment had not been very encouraging, and unless there was pressure on important nerves or vessels by the enlarged glands he would refrain from advising its adoption. The X rays were the most valuable means at our disposal for the treatment of these cases. He had seen most satisfactory results follow their use, but was of opinion that the best

results would be got if arsenic was administered at the same time. The rays reduced the gland enlargement as nothing else could, but unfortunately the patient's general condition did not show a corresponding improvement. By whatever line of treatment adopted, however, cure could not be attained, but merely a keeping of the disease under control. The apparatus used should be a powerful one, and the rays given two or three times a week for periods depending on the condition of the patient. Several cases were quoted, amongst them being that of a lady with marked enlargement of the mediastinal glands, where the rays had produced a very wonderful improvement in the condition of the glands, her general condition, however, being very little better. In leukæmia, when there was a rise of temperature, the patient should be absolutely confined to bed and great care observed to avoid injury to the spleen. He strongly urged open-air treatment for these cases. Arsenic should be given in large doses; in one case he had given 25 minims of the Fowler's solution three times a day. The X rays were of value, leading to a surprisingly rapid reduction in the size of the spleen and markedly controlling the excess of the white blood corpuscles. The applications should be persisted with for two or three months, and then given once a month. Here, again, the rays did not lead to a cure, and he had observed that where relapses occurred they had frequently proved valueless. In lymphatic leukæmia the acute cases ran a very rapid course and the chronic ones were very protracted. Cases were quoted to prove that in this condition the X rays were of little value. They certainly reduced the white blood corpuscles, but at the same time there was a very marked reduction of the red. In splenomegaly the X rays were of no value. He thought excision of the spleen held out the best chances for the patient. Where ascites was present tapping must be resorted to.—Dr. C. H. Melland said that his experience of the removal of one set of glands in Hodgkin's disease was that it frequently led to the lighting-up of the disease in other glands. Arsenic had given him excellent results. It should be given in large doses, stopped for a while, then large doses again, and finally the patient kept on a course of small doses. X rays, he thought, were effective, but he preferred to start with arsenic, and when this appeared to be failing in its effect then go on to the rays. In leucocythæmia he regarded arsenic as invaluable. He had seen the leucocytes reduced in ten months from 150,000 to 8000 per cubic millimetre. The reduction, too, was usually accompanied by an improvement in the general condition of the patient, a fact which was often absent in Hodgkin's disease. In splenic anæmia he thought arsenic should be given in increasingly large doses. In one case under his care he had observed the reduction in the size of the spleen to one half what it was when the arsenic was started, and this in two months, and the accompanying anæmia had entirely disappeared. A recurrence of the condition would make him seriously consider the advisability of surgical interference.—Dr. P. R. Cooper said he regarded lymphadenoma as being very closely allied to lymphosarcoma, and acting on this opinion he had some years ago treated an advanced case of the former with injections of Coley's cancer fluid. He started with injections of half a minim and finally was giving five minims. The injections had on two occasions been followed by serious collapse. He was of opinion that treatment with vaccines would most probably in the future prove to be of value. — The President briefly referred to the effects produced by the injection of Coley's fluid. He had seen collapse follow the injection of half a minim, while two or three minims had no effect.—Dr. A. A. Mumford asked Dr. Murray if the X rays had proved of any value in the treatment of enlargement of the thyroid gland. —Dr. Murray, in reply, said that he had not observed the effect of surgical treatment referred to by Dr. Melland, but would bear it in mind. He pointed out to Dr. Cooper that the structure, microscopically, in lymphadenoma and lymphosarcoma had been definitely proved to be entirely different. The X rays had proved of no value in the treatment of enlargement of the thyroid.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—A meeting of this society was held on Feb. 17th in the Victoria Infirmary, Professor R. Muir, the President, being in the chair.—Dr. A. Napier described the Treatment of Phthisis Pulmonalis as carried out in his wards.—Mr. A. E. Maylard showed a series of Abdominal Cases illustrating the following conditions:—(*a*) Congenital narrowing of the pyloric orifice treated by gastro-jejunostomy. (*b*) Hypertrophic stenosis of the pylorus in the adult; pylorectomy with gastro-jejunostomy for supposed malignant disease. (*c*) Hour-glass contraction of the stomach treated by gastro-gastrostomy. (*d*) Intractable gastric neuroses treated by exploratory gastrotomy. (*e*) Tuberculous cæcum—excision and implantation of ileum into ascending colon by invagination. (*f*) Carcinoma of colon —excision—continuity established by intestinal invagination. (*g*) Carcinoma of colon—inoperable—short-circuiting by intestinal invagination in place of artificial anus. (*h*) Acute intestinal obstruction—fæcal vomiting—evacuation of contents of intestine and introduction of magnesium sulphate into the bowel. (*i*) Appendicitis with abscess—appendicectomy and swabbing of abscess cavity with pure carbolic acid. (*j*) Tuberculous peritonitis—laparotomy—removal of fluid and exploratory manipulation of parts. (*k*) Uterine and ovarian tumours removed by subumbilical transverse incision. (*l*) Invagination of divided ureter into bladder. (*m*) Transperitoneal nephrectomy by transverse incision. (*n*) Lipectomy for pendulous abdomen and ventral hernia—removal of 10 pounds 11 ounces of fat by a 21-inch transverse elliptical incision. (*o*) Abdominal cicatrices after transverse or oblique division of the rectal sheaths and recti muscles.—Mr. R. H. Parry showed cases to illustrate Points in the Surgical Treatment of (*a*) Torn Cartilage in Knee-joint; (*b*) Exophthalmic Goitre; (*c*) Fractures into Joints; (*d*) Gangrene of Gall-bladder; and (*e*) Duodenal Ulcer.—Dr. J. Grant Andrew showed (*a*) Cases of Renal Calculi, with Skiagrams; (*b*) Two Children suffering from Infantile Spastic Paraplegia who, prior to orthopædic treatment, were unable to walk; and (*c*) an Infant who has been Operated on for Congenital Hypertrophic Stenosis of the Pylorus.—Dr. Robert B. Carslaw showed (*a*) a patient operated on three months ago for Perforation of Pyloric Ulcer (Excision of Ulcer, Pyloroplasty), who developed empyema suddenly after two months of good health; (*b*) Card Specimens—(1) Acute Carcinoma of the Breast removed from a young woman, aged 29; (2) X Ray Photographs of Two Cases of Tuberculosis of the Acetabulum, with Pathological Dorsal Dislocation of the Head of the Femur (photographs taken before and after operation).—Dr. A. Brown Kelly showed cases presenting the following conditions:—(*a*) Double Abductor Paralysis; (*b*) Pharyngeal and Laryngeal Nystagmus; (*c*) Cornua of Hyoid Projecting into Pharynx; (*d*) Cicatricial Stricture of the Œsophagus; (*e*) Submucous Cleft Palate; (*f*) Keratosis of Pharynx and Larynx; and others.—Dr. A. N. M'Lellan showed (*a*) a patient operated on for Extra-uterine Pregnancy of the Right Tube, in whom the left tube was distended with blood-stained fluid and closed; (*b*) a case of Carcinoma of the Body of the Uterus; (*c*) a case of Fibroma of the Left Ovary with extensive adhesions to bowel and pelvic floor; large accumulation of fluid in pleural and peritoneal cavities, which was removed on several occasions by tapping; removal of tumour, followed by complete disappearance of fluid from both cavities; patient now in good health.—Dr. Albert A. Gray showed (*a*) microscopic sections showing the organ of Corti; (*b*) microscopic sections showing the Cochlea of a Deaf-mute; (*c*) microscopic sections from a case of Oto-sclerosis; (*d*) macroscopic specimen showing Fixation of the Stapes in Oto-sclerosis; and (*e*) family tree showing the Influence of Heredity in Oto-sclerosis.—Dr. Hugh Walker showed some Ophthalmic cases.—Dr. John Anderson showed pathological specimens illustrating some of the Enlargements of the Kidney.—Dr. D. O. MacGregor showed a series of skiagrams illustrative of various medical and surgical conditions.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 17th, Dr. J. Dobson being in the chair.—Mr. H. Collinson read a paper on the Acute Aspects of Appendicitis in Children.—Dr. T. Churton showed two cases of Graves's Disease and made some comments on the prognosis, drawing attention to the fact that it was in many cases favourable. He related the case of a woman who had been under his observation for 33 years. She recovered from the first attack in 12 years; less completely from a second attack; and died in 1910 from (it is said) heart disease and dropsy at the age of 54 years. Another patient still under observation had been free from symptoms for 11 years.—Dr. T. Wardrop Griffith gave a short demonstration of the information obtained by the use of the clinical polygraph in cases of actual and of apparent pulsation of the liver, in connexion especially with

cardiac disease. Two cases were especially commented on in which there was great hepatic enlargement. In one of these in which there was a pulse of the continuously irregular type, with a jugular pulse of the ventricular variety, there was extreme hepatic expansile pulsation which was shown to be also of the positive or ventricular character. In another case in which the enlargement was quite as great the pulsation of the liver was shown to be apparent only, and due to an upward drag on the liver exercised on that organ by the contraction of the ventricles. In a third case an auricular as well as a ventricular wave was shown. The bearing of these observations on diagnosis was briefly commented on.—Mr. H. Secker Walker showed a case of Chronic Glaucoma affecting both Eyes, for which Herbert's small scleral flap operation had been done ten weeks previously with successful results. He also exhibited a case of Excision of the Lacrymal Sac for Chronic Dacryocystitis.—Mr. J. A. Coupland showed a girl, aged 18 years, with an Ulcer exposing the Inner End of the Right Clavicle. The ulcer was of 17 months' duration. It had firmly healed under complete rest with fixation of arms, but recurred in two months. The ulcer showed no characteristics of syphilis or tubercle and did not react to antisyphilitic treatment. It was suggested that the ulcer was artificially produced by the patient herself.—Mr. W. Thompson showed a boy, aged 12 years, in whom four years ago the greater part of the right tibia was removed for acute osteomyelitis. The upper epiphyseal line of the tibia had been destroyed and it was three inches shorter than the other tibia. The fibula was half an inch shorter than the other and had overgrown the tibia both above and below.—Mr. W. Gough showed a Villous Tumour removed from a woman who had had several attacks of painless, profuse, paroxysmal hæmaturia. Through Nitze's cystoscope a small tumour was seen at the left ureteral orifice. A large Kelly's cystoscope was then passed and the tumour was avulsed by means of a pair of long-nibbed forceps. Removal left only one small raw point.—Mr. H. Littlewood and Mr. S. W. Daw showed a boy, aged 12 years, in whom there was a massive Keloid of the Neck following burns from ignition of a celluloid collar two years ago. The tumour began to appear as the scar was healing.—Mr. G. Constable Hayes showed a patient, aged 24 years, who had had a Discharge from both Ears from Childhood. She had suffered from snuffles and sores around the mouth as a baby (marked scarring at angles of mouth). The right ear showed complete destruction of the membrana tympani and ossicles. The opening of the Eustachian tube was seen in the middle ear. Watch was heard at 5 inches. The left ear showed an aural polypus presenting at the external auditory meatus, with its origin from the attic. Watch was heard at 15 inches. The nose showed extreme atrophy of ethmoid with rhino-pharyngitis sicca.—Mr. H. Collinson showed a case of Bismuth Poisoning after the use of Stiles's paste.—Cases and specimens were also shown by Dr. E. F. Trevelyan, Dr. J. Stewart, Dr. J. B. Hellier, Dr. R. A. Veale, Mr. Michael A. Teale, and Dr. W. H. Maxwell Telling.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 16th, Mr. A. W. Cuff, the President, being in the chair.—Dr. John Robertson read a paper in which he stated that there had probably been no greater change in the whole range of medicine than that which had taken place in their views in regard to the nature of infection and the methods by which it was conveyed from one person to another. They now recognised that from 60 to 70 per cent. of all the deaths were due to processes which were known as infective, while of the remaining ill-defined causes of death many were of similar origin. There was still a group of infective diseases, of which measles and small-pox were types, in regard to which their knowledge was very incomplete, as they did not know how the infection was given off from the infected person. They had, therefore, invented as an explanation the theory of aerial convection. Clinical and bacteriological investigation had, however, given reliable information as to how the infection in most of the other diseases was conveyed either directly or indirectly. Careful observations in fever hospitals and in private practice had demonstrated beyond doubt that in the majority of diseases the infection was transported from one to another directly or indirectly, and that passage through the air did not play the part which it was at one time thought to play. While this was so in practice it could be demonstrated that in the act of loud talking particles of saliva were ejected from the mouth and carried in the air to distances of 30 or 40 feet. It was, therefore, probable that this projection of infection should be taken into consideration in dealing with cases where coughing or sneezing was present, such as occurred in measles, whooping-cough, and tuberculosis of the lung. No two diseases could be regarded as alike in the way in which the infection was spread. Carrier cases were now a recognised source of infection. Dr. Robertson thought that they played a very much less important part in practice than theoretically they should play. The problem of infection spread by flies, mosquitoes, fleas, &c., was also dealt with.—Dr. Arthur J. Hall showed a case of combined Posterior and Lateral Sclerosis (Ataxic Paraplegia) in a man aged 23 years. The symptoms, which began 18 months ago, consist of marked ataxia with weakness in the legs and pain in the knees. The gait is very ataxic and is associated with some jerkiness of movement and slight tremors at times. The eyes are normal in every way, also the head and neck and upper limbs. Romberg's sign is well marked; patellar jerks much exaggerated; toe extension on both sides; no true ankle clonus; no tenderness; no definite alteration of sensation; sphincters normal; no family history of similar cases; no syphilis; no etiological factor discovered.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 23rd, when a demonstration of Kinematographic Microscopy was given by Dr. E. Burnet of Leamington. The films exhibited showed trypanosoma Brucei, trypanosoma Lewisi, spirochæta gallinarum, spirochæta pallida, the organisms of relapsing fever, and spirochætæ of Vincent. The demonstration was a most interesting one, and a large audience listened with the greatest interest to the explanation given by Dr. Burnet of the various points shown by the films. A hearty vote of thanks to the demonstrator concluded the proceedings.

Reviews and Notices of Books.

Manual of Medicine. By THOMAS KIRKPATRICK MONRO, M.A., M.D. Glasg., Professor of Medicine, St. Mungo's College; Fellow of, and Examiner to, the Royal Faculty of Physicians and Surgeons, Glasgow; and Physician to the Glasgow Royal Infirmary. Third edition. London: Baillière, Tindall, and Cox. 1911. Pp. xxii.–1023. Price 15*s.* net.

THE author of this well-known manual has in this new edition thoroughly revised it from beginning to end. Many details have been altered, and extensive additions been made to the subjects of dysentery, syphilis, cardiac arrhythmia, the cerebro-spinal fluid, epidemic anterior poliomyelitis, enteroptosis, certain affections of the skin, and food poisoning. It now offers to the student of medicine an exposition that is thoroughly in accord with the best teaching of the present day. We have before reviewed the work very favourably, and the present edition again is one that can be thoroughly recommended to the student. We shall in this notice lay more stress on the new matter.

Enteric fever is lucidly described, but in the section on the etiology we find no mention of the great epidemic in England caused after the termination of the South African war by the agency of the blankets that had been used by our sick in hospital in South Africa. More stress might also have been laid on the agency of carriers of the disease, such a fruitful source in India of its propagation. Amongst the antiseptic drugs mentioned, that introduced to the profession by Sir Robert Simon, namely, oil of turpentine, is not spoken of. This drug most certainly, in the experience of those who have tried it, improves the pulse and the state of the evacuations, and is also an extremely good prophylactic against intestinal hæmorrhage. The treatment laid down for pneumonia is excellent, especially that with respect to the use of alcohol and strychnine. We would like to have seen some remarks concerning the beneficent use of that old and now too generally discarded remedy, antimony. In

the section on acute rheumatic fever there is no mention of the prophylaxis as regards the supervention of endocarditis advocated by Dr. R. Caton of Liverpool.

Dysentery is in this edition considered more definitely under the heads of bacterial and amœbic dysentery. The post-mortem lesions of the latter form are briefly but well described, as are also the symptoms. The treatment is thoroughly in accordance with the rules of our American *confrères* in that the use of enemata is especially indicated. There are, we notice, certain important omissions in the remarks on the treatment of blackwater fever, which should be remedied in a future edition. Thus no mention is made of Sternberg's mixture of bichloride of mercury and bicarbonate of soda, which has proved of such value at the hands of many physicians, and especially the urgent necessity of giving frequent rectal enemata, six to eight ounces at a time, of normal saline solution, until the hæmoglobinuria ceases. This has certainly proved a most successful treatment. It should be commenced early. The author, in his remarks on syphilis, draws attention to the Wassermann reaction, showing its value as a guide to early treatment, and in the determination in any given case whether specific treatment should be continued or not. He also remarks on the value of the new remedy "606."

In the section on circulatory disorders an excellent diagram is given of the relations of the heart and great vessels to the lungs and thoracic wall. Arrhythmia receives a much more extended notice in this edition than in the last. The researches of Gaskell and James Mackenzie receive due acknowledgment, and the author in his remarks on this symptom has included everything of importance.

The section on abscess of the liver is excellent. The author's remarks are thoroughly up to date. The work of Major Leonard Rogers, so well known in India by his researches on tropical medicine, is recognised; this latter observer has taught us how to diagnose amœbic hepatitis in its pre-suppurative stage, and has reintroduced the treatment by ipecacuanha, advocated by the late Surgeon-General W. C. Maclean. He has also successfully treated in many cases deep-seated abscesses by injecting 30 grains of bihydrochloride of quinine in two ounces of water, after evacuation of the pus by the aspirator.

In the description of epidemic anterior myelitis the author has furnished us with one of his best sections; and in its concise, but at the same time complete, portrayal of the disease the student will find one of the best expositions we know. A new feature of the work is the section on the cerebro-spinal fluid; here the changes in the fluid in disease, the method of puncture, and its value as a therapeutic agent are fully discussed. Finally, amongst other additions to the work we would emphasise the fuller treatment of the subject of enteroptosis and of certain affections of the skin, whilst the whole section on the affections due to food poisoning could not be better described.

By the use of a larger page the author has managed not to make his work too cumbersome despite its valuable additions. It is an excellent treatise.

Gynecological Therapeutics. By S. JERVOIS AARONS, M.D. Edin., M.R.C.P. Lond. With Foreword by Sir J. HALLIDAY CROOM, M.D. Edin., F.R.C.P., F.R.C.S. Edin. London: Baillière, Tindall, and Cox. 1910. Pp. 178. Price 5*s.* net.

IN the opinion of the author, most of the text-books on gynæcology treat of the subject too much from the purely surgical point of view, and he has therefore written this book dealing with the medical aspect of gynæcology, and containing an account of such methods of treatment as he has had personal experience of. The book contains a large amount of practical information of a useful character and a number of prescriptions which cannot fail to be of help to the practitioner.

There are, in our opinion, one or two omissions: thus in the treatment of inversion of the uterus the author, although he mentions the possibility of having to amputate the uterus, says nothing of the various forms of hysterotomy which should, of course, be tried first. The objection raised to the use of a rubber cup-and-stem pessary for prolapse of the uterus does not, we think, hold good; the new form of ring-and-stem rubber pessary is undoubtedly the most comfortable for the patient, and the fact that the stem is pliable prevents the instrument from causing pain if the patient inadvertently sits upon it.

There is a want of order in the arrangement of the book which does not increase its value. Thus, the chapter on Vaccines and Sera is followed by one on Pelvic Peritonitis. The statement on p. 163, that if the uterus of a parous woman be acutely anteflexed the utero-sacral ligaments are shortened by inflammatory infiltration, does not correspond with our clinical experience, nor with the condition of the utero-sacral ligaments as revealed by operation in the majority of these cases. Eau de Cologniensis is a curious term; the only name for this liquid known to us, apart from eau de Cologne, is spiritus Coloniensis.

Dr. Aarons evidently believes in the leverage action of the Hodge pessary. We wish he had attempted to give a satisfactory explanation of the mechanics of such an action, if it exists.

Handbuch der Vergleichenden Physiologie. Herausgegeben von HANS WINTERSTEIN. Band II.: Physiologie des Stoffwechsels (Erste Hälfte); Lieferungen 6, 7, 9, and 13. Band III.: Physiologie der Energieproduktion (Zweite Hälfte); Lieferungen 8, 10, and 11. Band IV.: Physiologie der Reizaufnahme, Reizleitung, und Reizbeantwortung (Erste Hälfte); Lieferung 12. Jena: Gustav Fischer. 1910. Each Lieferung 5 marks, and pp. 160.

THE four parts of Vol. II. deal with the Physiology of Metabolism. It is impossible to do justice to the colossal amount of labour bestowed by Professor Biedermann on such an immense subject. His researches on electrical phenomena manifested by living beings have become classical, so have his researches on colour changes in frogs, and now from the seemingly small—yet important—beginnings on the digestion in the insecta, published some years ago in *Pflüger's Archiv*, we have this magnificent compilation of all that relates to the metabolism, not in one animal, but in all invertebrates, beginning with the lowest. The ripe and extensive knowledge of zoological details, the excellent illustrations of gross and minute structure, and the multifarious types under review, coupled with the careful account of the physiology of the processes of the capture, reception, digestion, and assimilation of food in such a variety of animals, command not only our admiration for the thoroughness of the author's researches into this vast subject, but also for his unwearied perseverance in collecting such a mass of facts as were certainly never before included in any one monograph on metabolism and allied subjects. Professor Biedermann has laid a broad basis for the foundation of the study of the comparative physiology of metabolism. The four parts before us deal with the cœlenterata, including an elaborate account of symbiosis with algæ, both in cœlenterates and in turbellarians. Then follows a graphic account of the nutritive processes in worms in all their varied forms, including a discussion on Bunge's fertile suggestion of the resemblance between the conditions that obtain in the intestine and those in which anaerobic bacteria flourish. Naturally the leech and the earthworm come in for full treatment. As to the latter, regret is expressed that in spite

of the work of Darwin and many other observers we are still very imperfectly informed regarding its digestive activities. The echinoderms are fully treated, and we are glad to see justice done to the excellent work of Preyer and of Jennings. Next follows digestion in the crustacea, spiders, insects, and the wonderful changes that necessarily occur in the digestive organs from the caterpillar to the imago stage. The mollusca, including the cephalopods and the gasteropods, are dealt with in a similarly comprehensive and exhaustive manner. We strongly commend the study of the questions dealt with to zoologists, for Professor Biedermann has linked up the facts of structure with their uses in a manner never before attempted on a scale so wide and so suggestive. Specially interesting is the extensive discussion of the glycogen problem in the mollusca and the varied and important functions performed by the "liver." Towards the end of the thirteenth part the author begins the study of digestion in vertebrates, including fishes, amphibia, and reptiles. To put in another way some idea of the "gründlich" character of Professor Biedermann's contribution we may say that this section has already extended to 1144 pages of text and illustrations.

The first part of Vol. III. deals with all that relates to animal heat. It is from the pen of one of the most distinguished of living physiologists, Robert Tigerstedt of Helsingfors, whose text-book on physiology, originally written in German, has been translated into English. The monograph on heat is, like the succeeding monograph by S. Garten on "The Production of Electricity," a type of what a monograph ought to be. These two contributions will form the storehouse to which most investigators interested in these subjects will refer. To the work of English observers full justice is done, but in dealing with the electrical currents of the eye, long ago investigated by Dewar and McKendrick, it is perhaps a pardonable mistake that the latter name appears as Kendrick (p. 163), although it is correctly given in the literature index (p. 220). The illustrations are of a high order, and are well executed, soft, and pleasant to the eye. A very full account is given of the histology of the electrical organs. Some of the figures are original, and, of course, Ballowitz is largely drawn upon.

The latter half of the tenth and the greater portion of the eleventh part are devoted to the Production of Light. As set forth by Dr. E. Maugold the subject is presented in an attractive essay. It is a far cry from Aristotle to Pflüger, but the mentor of Alexander knew many things, including the fact that under certain conditions dead flesh became luminous. To come to later times, Fabricius ab Aquapendente of Padua observed luminosity for four days in a dead piece of lamb, while Boyle, by means of his air pump, noticed that the light diminished with the withdrawal of air and became brighter on its admission. Molisch, however, in recent years is the chief authority on luminous bacteria. In 1907 28 well-defined species of luminous bacteria were described. The common one on dead meat is Bacterium phosphoreum. There does not seem to be any reference to Sir James Dewar's recent experiments on the effect of very low temperatures on these organisms, though Macfadyean's work is referred to. A systematic account, illustrated by numerous figures, is given of the animals from protozoa upwards which exhibit luminosity, and in those that possess special luminous organs the minute structure of those organs is fully given. The latter half of the memoir is devoted to the peculiarities of the light itself—its colour and spectrum, the conditions of bio-luminescence, and the theory of light production—its relation to heat production, and how it is influenced by various conditions and stimuli, and especially its relation to oxygen. Reproductions of photographs taken by means of luminous bacteria by Molisch are given, but we hardly think that they are as good as those obtained by Professor P. Dubois of Lyons in the well-known instance of the bust of Claude Bernard. The production of light in plants is also included, with over 600 references to the literature. The remaining portion of the eleventh part is devoted to the Physiology of Form, by H. Przibram of Vienna, well known for his researches on the reproduction of organs and his studies in regeneration in animals. Throughout the work maintains its high standard, and must prove a boon to both physiologists and biologists.

Before any one of the four volumes is complete we are introduced to Part 1 of Vol. IV. Here a well-merited reference to the commanding and illuminating results of Sherrington's contributions to the physiology of the sensory receptor fields, as well as to the doctrine of specific energies of Johannes Müller, precedes a general account of the functions of the central nervous system; after which the author, Dr. S. Baglioni of Rome, proceeds to deal with protozoa and plants—regarding both from the point of view of the comparative neurologist. The careful reader will note that the author excludes "reflex-vorgänge"—i.e., reflex processes from the well-known responses that occur on the application of stimuli to plants and lowly animals. He reserves the term "reflex" for processes where a "central organ" is present. Myophanes or myoids are known to exist in stentor and vorticella, but according to Neresheimer there are neurophanes as well, which lie between the contractile fibrils and react differently from the myoid fibrils. The transmission of the excitatory state in plants is chiefly through the fine plasmatic bridges between the adjacent plant cells which seem to make the plant itself a unit.

Hertwig and others long ago showed the presence of a nervous system in certain of the cœlenterates—e.g., Medusæ. The author gives an elaborate account of the phenomenon elicited by the application of noxious and useful stimuli to polyps, such as hyola, and also of the experiments of Loeb on regeneration of parts in cerianthus, the study of tropisms, and the excellent work of Jennings on the movements of the lowest animals—movements which Loeb thought did not imply the presence of a nervous system. There is a full discussion on the function of the nervous system in polyps and actinia and their allies. The classical work of Romanes on Medusæ is fully gone into and so is that of Yerkes on Gonionema. The author quotes liberally from Romanes. Verworn denied the existence of a nervous system in ctenophora, although Nagel postulates its existence. A very full account is given of the nervous system in worms and of the very numerous experiments that have been made on them by Retzius, Friedländer, and Biedermann. The common earthworm is naturally dealt with very fully. Tunicates are next considered and then echinoderms. Here, again, justice is done to the work of Preyer and Romanes. The number of illustrations (17) appears to us rather small for such a mass of text.

Our general appreciation of the work appears abundantly from what has been said.

Hook-worm Disease: Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. By GEORGE DOCK, A.M., M.D., Professor of Medicine; and CHARLES C. BASS, M.D., Instructor of Clinical Microscopy, Tulane University of Louisiana, Medical Department. London: George Keener and Co. 1910. Pp. 250. Price 9s. net.

THE authors of this work rightly say that few diseases surpass uncinariasis in the strangeness of its history, the importance of its ravages, or the theoretic ease of its extinction. Its study in America has shown the heavy load which it can lay upon a country. Largely due to it, a region which should be most fertile lies relatively uncultivated; a population derived from the best colonising blood

ekes out a miserable existence, and is doomed to extinction unless it is soon relieved of the infection.

The affection is in truth widespread, as evidenced by its synonyms expressive of the various countries in which it has been found. The introductory chapter deals with its history, from which we learn it was known as early as the seventeenth century. It occurs in tropical, subtropical, and temperate climates, having been met with from latitude 51° N. to nearly 40° S.; in the tropics it is, quite probably, the chief cause of the so-called tropical anæmia. The chief factors in the existence of hook-worm infection are high temperature and moisture; thus, in the mines of Westphalia the higher the temperature, the greater the percentage of infection, whilst the influence of moisture has been noticed by all who have studied the disease. The authors give a very good and lucid description of the zoological features of the *ankylostoma duodenale* and of the *necator Americanus*. They then pass on to the modes of infection, which are through the mouth directly and through the mouth indirectly by way of the skin, the former being of minor importance, as skin infection is practically the only source of the disease. The reproductive stage of the parasite is reached only in the intestinal canal, where it lays its eggs, which pass out with the fæces, not hatching in the canal on account of lack of oxygen. How enormous is the number of eggs passed with each stool has been shown by Leichtenstern, who estimated the total daily excreted in one of his cases to be over 4,000,000. The requirements for hatching are detailed, amongst which are moisture, shade, and warm temperature. The infection may occur then through the drinking water and food; but the chief important route is through the skin, as shown by Looss in 1898.

The pathological anatomy is well described; in this chapter the question of the causation of the anæmia is considered. This is due in many cases to the loss of blood caused by the sucking of the mucous membrane by the parasites and the subsequent hæmorrhage; but this is not the cause in many other instances, the anæmia here being due to the poisonous products absorbed from the foci of inflammation caused by the parasite in the intestine. The authors then pass on to the symptomatology of hook-worm disease; this chapter is illustrated by some excellent figures. The changes in the blood, the joint pains, the affection of the skin, the symptoms in the respiratory, circulatory, digestive, and genito-urinary systems are all detailed in a lucid manner, as are those of the eyes and nervous system. Then we come to the section concerning the diagnosis, which treats of the examination of the fæces, the description of the eggs and their differentiation from other ova, and the special methods for greater certainty in finding the eggs. Next, in the chapter on prognosis, the mortality is considered, and the effect of intercurrent diseases and complications. The work concludes with the methods of treatment.

As regards prophylaxis, the essential elements are the stopping the danger of infection by exterminating the mature worms in the bodies of human beings, the preventing the growth and existence of larvæ in the places where they develop, and the prevention of infection by larvæ. In considering the treatment of the hook-worm in the intestine the best way of administering thymol is entered into, and the symptoms of intoxication by this drug and their counteraction are detailed. Amongst other drugs that have been recommended are beta naphthol, oleoresin of male fern, eucalyptus oil, podophyllin, kerosene oil, and guaiacol carbonate, whilst stress is laid on the importance of the general treatment of the anæmia induced by this disease.

This treatise on hook-worm disease is the most comprehensive account of the affection that has yet been published, and we congratulate the authors upon a valuable piece of work.

Argentina: Past and Present. By W. H. KOEBEL. Illustrated. London: Kegan Paul, Trench, Trübner, and Co., Limited. 1910. Pp. 455. Price 12*s.* 6*d.* net.

As a boundless field wherein the great synthetic processes producing man's vegetable and animal food are peculiarly favoured, the Argentine may well deserve the attention of the medical profession. There is not the least doubt that Argentina is going to be one of the most prolific producers of the meat and wheat supply of the world. Already the exportation of these foods to this country has reached a very large scale, and the time when fodder and cereals can no longer be grown in the Argentine under the present highly economical conditions must be very far distant. This fact connotes a country of vast plains of grass and well-watered areas, and the traveller who expects to find in the Argentine a physiographically interesting country will be deeply disappointed. It is an ocean of grass with its levels as unrelieved as the sea itself. It rejoices, however, in uninterrupted sunshine for the most part of the year, and the air is peculiarly exhilarating, being apparently endowed with an aseptic property which gives it a healthy and healing power. "Qué buenos aires son los de este suelo!" (What fine air there is in this country!) is said to have been the exclamation by the first man who stepped ashore at the mouth of the River Plate. Occasionally the country is visited with serious droughts, but on the whole it is more fortunate in this respect than many other pastoral countries. There is no record of a rainless spell, at all events, which has ended in total calamity, and although the quite recent visitation was severe it has at length broken up. Another enemy to be dealt with is the locust whose ravages every year increase in severity. Mr. Koebel has written a very interesting account of this country which, with the successful applications of science, has such a future before it. He has followed tracks with which the reviewer is familiar, who has found therefore peculiar pleasure in reading the details of the narrative, which are accurate and picturesquely set out. The history and ethnology of the people are not the least interesting part of the book; there are some charming stories of the peones, estancieros, the gauchos, and so forth, and the account of the great industrial developments which threaten to reach colossal dimensions is full of interest. "The Story of the Pastures" has given us particular pleasure in reading. Equally well described are the doings in the camps. The book will appeal not only to the reader who may anticipate a visit to the Argentine or who may happen to have been there, but to the reader who takes a general interest in the development of new countries.

Andreas Vesalius: The Reformer of Anatomy. By JAMES MOORES BALL, M.D. Saint Louis: Medical Science Press. 1910. Pp. 149. Price $5.

THIS is a book that will delight the heart of the bibliophile as well as the eye of the artist and the soul of the medical antiquary. Basing his work on Roth's "Andreas Vesalius Bruxellensis," Berlin, 1892, Dr. Moores Ball, a medical antiquary of zeal tempered with discrimination, has produced a volume rich with the fruits of personal research. The setting is worthy of the contents. It is printed on heavy tinted Normandy vellum that shows up the type and the engravings admirably. There are upwards of 50 illustrations, reproduced from the original publications of Vesalius or from the works of preceding anatomists. The frontispiece is a sepia-tinted photogravure of Vesalius, and there is also a reproduction from an ancient copper-plate portrait of him.

The scope of the book is wide. It begins with an

introduction to the history of medicine, particularly dwelling on the period of the Renaissance. After briefly tracing the study of anatomy from Egypt and Greece to the time of Frederick II., Dr. Ball devotes a chapter to Mondino and his "Anathomia," first printed at Pavia in 1478, and another chapter to the successors of Mondino, of lesser fame, of whom, perhaps, Berengarius is the most widely known. Then we are introduced to the early life of Vesalius, who was born in Brussels on Dec. 31st, 1514, of a family in which medical learning was traditional; for his great-great-grandfather Peter, his great-grandfather John, his grandfather Eberhard, and his father Andreas, were all accomplished in the field of letters and in medicine. But in addition to the influence of paternal heredity his mother's fostering care also undoubtedly exercised considerable influence in the formation of his career, as is so often the case with great men. Dr. Ball follows in successive chapters the career of Vesalius at Louvain, his studies in Paris and Venice, his graduation at Padua in December, 1637, and his work there as the occupant of the first purely anatomical chair ever instituted. In the next chapters the literary labours of Vesalius are closely followed, his "Tabulæ Anatomicæ," the "De Humani Corporis Fabrica" (his greatest work), and the Epitome thereof. The contents of the "Fabrica" are reviewed in some detail, and the conclusion is formulated that although this great work contains many errors that a tyro of the present day would laugh at, it laid the foundations of our knowledge. Vesalius overthrew the idol of authority in anatomy and taught us to look at Nature with our own eyes. Two chapters follow respectively on the Contemporary Anatomists of Vesalius and on his Commentators and Plagiarists; while the book closes with an account of his abandonment of the scientific career in disgust at the jealous opposition he experienced, particularly at the hands of his former pupil and friend, Columbus Realdus; of his career as archiatros to the Emperor Charles V. of Spain; of his pilgrimage to Jerusalem, and his shipwreck and death.

Dr. Ball has given us more than a mere account of Vesalius: it is a scholarly *résumé* of the history of medicine of the period. A glance at the copious index will show how many personages, great and small, appear in the course of the book, and of these quite a number receive a biographical sketch of their own.

Logic for the Million. Edited by T. SHARPER KNOWLSON. London: T. Werner Laurie. 1911. Pp. 248. Price 6*s.* net.

WITH all due respect to the great Herbert Spencer—whom the author of the present book, in his introduction thereto, quotes as having expressed himself in the following terms: "I have at no time paid the least attention to formal logic, and hold for all practical purposes it is useless"—a capacity to reason correctly is at the bottom of man's successful evolution above his fellow animals. But for this faculty being to some extent inherent, man could never have survived in the earliest ages against other animals better equipped than he for the struggle with Nature. The displacement of logic from the educational curriculum is in part due to the irksomeness of the cut-and-dried methods of the schools, and in part to the fashion of referring all reasoning to the arbitrament of "common sense." Now, common sense acts well enough in reasoning when the value of all the terms is known, but when a term of the attributes of which we are ignorant comes into play "common sense" becomes powerless to keep a check upon the result of our reasoning, the correctness of which must consequently depend on our capacity to test the validity of our statement of the relations between given propositions, as we test the validity of our arithmetical or algebraical propositions, by abstract rules. To all scientists, therefore, among whom in some degree must be classed all medical men, a knowledge of the principles of logic is as necessary as a knowledge of arithmetic to accountants. Logic has been belittled as a musty mediæval study—a conclusion based on reasoning that is itself incorrect; for this belittling has its basis mainly on the exploitation of sleight-of-mind tricks in the disputations of the schools, so that the attribute of a part or aspect has been unwarrantably ascribed to the whole. Thus the arguments adduced to show the uselessness of the study of logic really demonstrate the necessity for it.

The author aims to bring the science of reasoning out of the atmosphere of the class-room into the arena of daily life by using as illustrations of logical principles arguments from old and new writers and from the political and social discussions of the age, and by devoting attention to concrete cases, reviewing them in the light of facts as we know them instead of confining himself to the formal relations of series of abstract propositions. He is at his best, perhaps, when he illustrates the various ways in which, in ordinary parlance, we are accustomed to express ideas and to form judgments, such as constitute the subject, in most treatises on formal logic, of the various modes of syllogistic argument, and when he translates the formal syllogistic rules into self-explanatory propositions in the language of the "man in the street." Mr. Knowlson is to be commended for this new edition, very largely rewritten, of an old book. We think, however, that some injustice is done to the author of the original book, Mr. J. W. Gilbart, F.R.S., whose fourth edition of "Logic for the Million," dated 1854, lies before us; for we cannot consider that his authorship is even suggested, not to say acknowledged, by the statement on the title-page that the book is "edited" by T. Sharper Knowlson, or by the brief mention in the preface wherein Mr. Knowlson tells us what he, "following the lead of J. W. Gilbart F.R.S.," has endeavoured to do.

LIBRARY TABLE.

Darwin and the Humanities. (The Ethical Library.) By JAMES MARK BALDWIN, D.Sc., LL.D., Foreign Correspondent of the Institute of France. Second edition. London: Swan Sonnenschein and Co., Limited. 1910. Pp. 125. Price 3*s.*—The vital and transforming influence of the Darwinian theory of natural selection—which the author thinks might with entire appropriateness be called "Wallaceism"—on the biological sciences, as well as its influence on the spirit and methods of scientific inquiry generally, is well known and admitted. The corresponding influence of Darwin and the growth of Darwinism in the sciences of the Humanities has been but scantily traced out and recorded. In this booklet—which had its origin in a paper by the author on "The Influence of Darwin on the Mental and Moral Sciences"—the author proceeds to give a terse account of the influence of Darwinism on psychology, ethics, and sociology, and on the more general topics of logic, scientific method, philosophy, and religion. The author expresses the view that possibly the work may be found clearer and more effective from its brief and succinct mode of presentation. It is just possible that to the average reader the presentation is too "succinct." As an example of the succinct we may quote the author's reply to the question, What is natural selection? Simply the fact that "*some creatures survive and propagate their kind when others of the same kind cannot. That is all.*" To illustrate how so simple a fact can be of such consequence that the mere recognition of it amounts to a theory of evolution and establishes a great principle in science, the author

deals shortly with (1) over-production with variation; (2) struggle for existence; (3) survival of the fittest (H. Spencer's phrase); and (4) inheritance of inborn characters. He then proceeds to measure the influence of Darwin in psychology, and he begins with the vexed question of the rise of the animal instincts. Leaving aside the account of Weismann's view on "intra-selection," he boldly deals with plasticity and mind, and the progress made by the brain in mammals—the organ of increasing plasticity and educability. Its evolution is correlated with the decline of the instinctive and completely congenital functions. Next he deals with the utility of mind or the intelligent type of function, and then discusses heredity, physical and social, and the importance of gregariousness, play, and imitation. He thinks that Huxley failed to grasp how morality could be explained on Darwinian principles, for according to Huxley in our moral sense we have a principle of altruism and a rule of conduct that directly contravenes the principle of "struggle for existence." On the contrary, according to our author, "Morality has arisen because it is socially useful; that is the Darwinian account." The other chapters deal with logic, philosophy, and religion. The author makes out a strong case for his contention. It is a work which requires accurate thinking and keen logical acumen to grasp at the first reading, especially to those not well versed in modern problems of Darwinism and Philosophy. The work is dedicated to Alfred Russel Wallace, whose interest extends to all the Humanities.

Forbidden Fruit for Young Men. By Lieutenant-Colonel SETON CHURCHILL. Eighth edition. London: James Nisbet and Co., Limited. Pp. 269.—A book which has reached its eighth edition speaks for itself, and we can say in addition that the difficult subject with which Colonel Seton Churchill deals is treated with dignity, plain speaking, and the necessary reticence. Ignorance combined with natural curiosity is perhaps the most powerful stimulus to sexual licence and the evils which flow therefrom. This book gives the necessary instruction in a manly and simple fashion, and we can imagine no book from which a father might instruct his child better as regards the all-important matters with which it deals.

The Valley of Achor. By Mrs. PHILIP CHAMPION DE CRESPIGNY. London: Mills and Boon, Limited. Pp. 331. Price 6s.—To any reader who likes an exciting story and who does not mind obvious absurdities we recommend this book. One of the protagonists, young, clean shaven, and a Fellow of the Royal Society, is a student of infectious disease peculiar to the tropics, and has come to the conclusion that the germs of probably all tropical diseases have intermediary hosts for development before arriving at maturity. Mrs. De Crespigny here reminds her readers that the "tsetse fly and mosquito as intermediary hosts in the case of creeping (*sic*) sickness and yellow fever were already well known to science." The other protagonist is wrecked in the Bay of Biscay and is picked up by a passing fishing vessel, a "little schooner," which eventually landed him at La Guayra, which we find to be a port on the north coast of Venezuela. From here to the Bay of Biscay is a long way for a little fishing schooner to go. Accompanied by his servant, who had also been picked up, the wrecked man then explores the basin of the Amazon and is rewarded by the discovery of a white nation. He comes home, is fêted so much so that we are told that it is nearly certain that Oxford will make him an LL.D.! Then a rumour gets about that he has never been in South America at all, but his character is triumphantly cleared by the other protagonist, who demonstrates a parasite in his blood (Hepatozoon perniciosum) which had only been found hitherto in rats and mites in South America. Despite its absurdities, the story is quite a good one.

JOURNALS AND MAGAZINES.

NEW MEDICAL JOURNALS.

The North of England Clinical Journal, the organ of the Newcastle-upon-Tyne Clinical Society. Vol. I., No. 1, Jan., 1911. Newcastle-on-Tyne: 24, Eldon-square. Price 1s.

The Canadian Medical Association Journal. Vol. I., No. 1, January, 1911. Toronto: Morang and Co., Limited. Price $5 a year; single copies, 50 cents.

Aesculape. Revue Mensuelle Illustrée, Médecine, Chirurgie, Pharmacie, Science, Lettres, Arts, dans leurs rapports avec la Médecine. Vol. I., No. 1, January, 1911. Paris: A. Rouzaud. Price 1.50 francs (abroad 2 francs). Subscriptions yearly 20 francs (abroad 25 francs).

Répertoire de Médecine Internationale. Revue et Revue des Revues. Vol. I., No. 1, January, 1911. Paris: Jules Rousset. Price 10 francs (abroad 14 francs) yearly; single copies, 1 franc.

Four new medical journals have this year made their appearance on our table, two in English and two in French. *The North of England Clinical Journal* is the organ of the Newcastle-upon-Tyne Clinical Society. It is to be issued quarterly under the editorship of Mr. George Foggin, aided by an editorial committee. It contains an address on the Menopause, by Sir J. Halliday Croom; the presidential address of Dr. E. Napier Burnett on Obstetrics in Relationship to some of the Allied Sciences; an illustrated article on the Pathology of Lymphadenoma, by Dr. Stuart McDonald; and papers on the Treatment of Certain Skin Diseases by Carbonic Acid Snow, by Dr. D. Wells Patterson; a record of the Year's Progress in Public Health, by Dr. Harold Kerr; the inevitable Ehrlich-Hata "606," by Dr. Herbert J. Slade; A Case of Actinomycosis, by Dr. T. M. Allison; and Some Notes on Clinical Cases and Pathological Specimens. This first issue gives promise that it will perform a useful function.

Our Canadian brethren are also putting out a very creditable journal, *The Canadian Medical Association Journal*, published in Toronto, under the editorship of Dr. Andrew Macphail. It contains seven original articles (one, of course, on "606"), including the opening address of the Medical Faculty at the University of Liverpool, by Professor Macallum of Toronto, and an interesting paper by Dr. James R. Goodall and Dr. L. C. Conn, in which they lay stress on the coincidence noted repeatedly by the former of the concurrence of lipomata with malignant disease of the thyroid, and suggest a causal relation between them. We feel strongly in sympathy with the writer of the editorial article on style in medical writing.

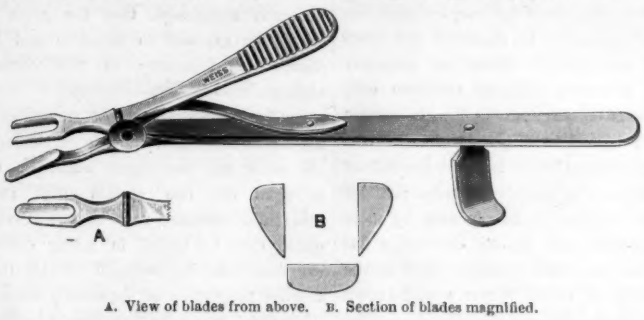
Aesculape is a monthly illustrated magazine of medicine, surgery, and pharmacy, published in Paris. It aims to claim proper recognition for the work of the Græco-Latin peoples in Europe and America, which apparently, in its opinion, does not receive an adequate share of credit. It contains many well-illustrated articles of interest, some of them, as for instance that on the "*Survie de la pensée chez les décapités*," having an antiquarian flavour. "606," of course, is the "*question du jour*."

Finally, the *Répertoire de Médecine Internationale* strikes out a novel line for itself. It is divided into three parts, the first of which contains original articles, the last is devoted to professional matters and bibliography, while the intermediate portion consists of at least 60 pages of "loose leaf" abstracts from the medical journals of the world, grouped into 28 classes by subjects, so that they can be filed away after the fashion of the well-known vertical filing system, to form a constantly expanding text-book of medical progress. Section XII., Venereal Diseases, is, of course, largely occupied with "606." The editor is Dr. F. Louis Hahn, chief bibliothécaire of the Paris Faculty of Medicine. We should like these abstract tablets better if the one-third space at the bottom were left vacant for notes in place of being allotted to advertisements.

New Inventions.

TWIN SCISSORS FOR SCLEROTOMY (HERBERT'S OPERATION).

THE instrument shown in the figure is designed to facilitate the performance of Herbert's operation of sclerotomy for the relief of chronic glaucoma. The idea in view has been to reduce the difficulty and time involved in making the two lateral cuts for the valve-like scleral flap which is the feature of this valuable operation. The instrument has been modelled upon the plan and does the work of two pairs of scissors, so that it has been called "twin scissors." It makes, on the gradual and shearing approximation of its blades, two parallel cuts, each 4 mm. in length, and separated from each other by 3 mm. In appearance it is something like a needle-holder, but the blades are different. The lower or male blade is flat and bevelled, so that each side presents a sharp edge; its free end is rounded and blunt and projects 2 mm. beyond the female blades. The upper or female blades are a pair of parallel sharply bevelled blades springing from a common stump. When the handles of the scissors are closed the female blades shear down on the sides of the male blade and come to rest, overlapping it (A). The instrument shown has been used for operating on four human eyes with successful results; it was then used to cut sheep's eyes, rubber sheeting, cloth, and paper until the keenness of the blades was dulled, then it was successfully sharpened.



A. View of blades from above. B. Section of blades magnified.

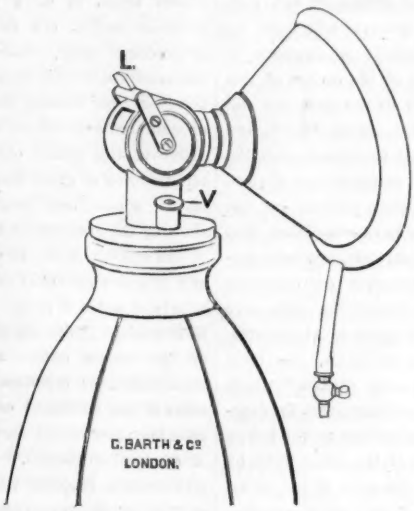
The lower handle of the instrument has a novelty in the provision of a finger plate, which, being slipped between the second and ring fingers at the joint of the end phalanges, gives a very steady and easy grip of the scissors. In cutting with the scissors it is essential to press the handles together evenly; if a lateral thrust be imparted to them the necessary fractional play of the hinge will allow one or other of the female blades to engage its side of the male blade too firmly and perhaps check the cut; if the lower handle of the twin scissors be operated by the ends of the fingers, just as in using ordinary scissors, the cutting will be easy and even. Trial cuts with the scissors should be made on rubber sheeting, but not on paper or card. In operating with the instrument I have found it convenient to first turn forward a flap of conjunctiva from the chosen site of the sclerotomy; then the keratome is inserted into the sclerotic 4 mm. from the clear corneal margin and passed through and under the sclerotic until its point appears within the corneo-iridic angle; it is pushed on until a clear 3 mm. of the blade is within the anterior chamber; the keratome is then withdrawn. Now the male blade of the twin scissors is pushed along the track of the wound until the projecting 2 mm. of the blades shows within the anterior chamber, the scissors are then closed, the cuts made, the male blade gently withdrawn, and with the replacement of the conjunctival flap the operation is complete. In the four eyes operated with this instrument eserine was used subsequently for three days.

The twin scissors are made by Messrs. John Weiss and Son of London.

N. BISHOP HARMAN, F.R.C.S. Eng.
Harley-street, W.

AN IMPROVED ETHYL CHLORIDE INHALER.

HAVING been required lately to administer ethyl chloride to children in considerable numbers I could not help being struck with the difficulty of "filling" the bag—i.e., of getting sufficient air into it to dilute the ethyl chloride vapour to the required degree, and to allow the patient as the breathing deepened with narcosis to take a full breath without entirely emptying the bag, and so getting the full dose of the anæsthetic in one inspiration—a really dangerous occurrence. I therefore devised a two-way cock to be placed between the face-piece and the bag, by means of which the first few breaths of the patient can be turned into the bag until it is sufficiently filled, and then, by drawing a lever, L, up towards the face-piece, the valve can be cut out and re-breathing permitted. In this way, too, the first breath or so which the patient takes after the face-piece has been applied is of air—a factor of some importance in restoring the confidence of very nervous patients and so conducing to a better anæsthesia. The ethyl chloride is sprayed directly into the bag, and in order that this may be done easily I have had a small valve, V, placed on the collar which supports the bag. This valve opens when the nozzle of the ethyl chloride tube is pressed against it, and closes automatically immediately the nozzle is withdrawn, a tube below carrying the discharge well away from the face-piece. The ethyl chloride may be sprayed into the bag either before it is applied to the patient's face, the valve practically preventing any escape until it is turned into the position for re-breathing, or it may be sprayed in while the patient is filling the bag, or added in divided doses as narcosis deepens—the method which I prefer. The apparatus has been made for me by Messrs. Barth and Co., and I have now given it a trial in over 100 cases (20 adults, with only one case of retching afterwards, and 90 children, with three cases of retching, two having to be detained about three-quarters of an hour owing to their feeling "faint and sick"). In no case was there any difficulty or hitch during the induction, the operation, or the recovery of consciousness.



C. J. LOOSELY, M.R.C.S. Eng., L.R.C.P. Lond.,
Anæsthetist to the Hospital for Sick Children, Great Ormond-street, &c.
New Cavendish-street, W.

THE LANCET.

LONDON: SATURDAY, MARCH 4, 1911.

The Immunity Reaction in Diagnosis.

THE study of the various aspects of the complex responses on the part of animal organisms to bacterial and other infections, which are collectively classed as immunity reactions, is constantly enriching practical medicine with new and valuable methods of diagnosis and with specific forms of treatment. In regard to diagnosis alone a vast amount of laborious experimental work has been carried out during the past few years, and as a result numerous methods have been tentatively introduced to be replaced by more accurate and more specific tests as our knowledge has advanced. Some of these immunity reactions, such as the agglutination phenomenon, of which WIDAL'S well-known test is the type, and the Bordet-Gengou reaction, depending upon the deviation of complement by the combination of an antigen and its specific antibody, are of very general applicability and have become established as more or less routine diagnostic procedures. Other methods are more complex or less easily carried out, and are as yet largely restricted to scientific laboratory investigations. An interesting, intelligible, and useful account of these applications of the processes comprised under the term "immunity" has been given by Dr. W. D'ESTE EMERY in the Hunterian lectures delivered before the Royal College of Surgeons of England on Feb. 6th and 8th and published in THE LANCET of Feb. 25th and in our present issue. Dr. EMERY discussed briefly the general mechanisms of hypersensitiveness and immunity, and then illustrated the application of the general principles by detailed reference to the newer methods of diagnosis of tuberculosis and syphilis. The value of his review of this important subject is greatly increased by the practical and utilitarian standpoint from which he has approached it, and also by the record of his own personal experience with the ordinary methods and with special modifications devised and introduced by himself. Dr. EMERY pointed out the important fact which recent researches have established, that the response to an infective agent comprises, not only processes tending to increase the protective or defensive agencies, but also others tending to render the body more susceptible or sensitive to the infective agent or its products. This increased susceptibility or anaphylaxis, the most familiar instance of which is the "serum disease" which sometimes occurs after injections of antitoxic sera for diphtheria, it now appears is an essential feature in the bodily response to infection and to invasion of the tissue fluids by alien proteins or antigens. It forms the basis of the tuberculin and mallein reactions, since it is only after sensitisation to these substances by previous injection or by a pre-existent lesion that the specific reactions occur. It is therefore important to recognise that this hypersusceptibility or anaphylaxis is as much specific as the more obvious and protective immunity. The exact relations existing between the two processes are as yet obscure, but, as Dr. EMERY pointed out, they may coexist, and a clear and unequivocal demonstration of either of them is definite proof of an infection, present or past.

In regard to tuberculosis, the application of these fundamental processes to diagnosis is a difficult one, at any rate in adults, partly owing to the nature of the tubercle bacillus, which is less easy to work with than many other organisms, but more particularly owing to the fact, now so generally recognised, that the great majority of adults have been exposed to infection and have acquired some degree of immunity to this organism. Dr. EMERY suggests that almost everybody is constantly being unsuspectedly vaccinated against the tubercle bacillus through the alimentary canal and the respiratory organs. Although we need not necessarily subscribe to this dictum, it is none the less certain that many forms of the tuberculin reaction, such as VON PIRQUET'S cuti-reaction, which may be useful in young children, are practically valueless in adults, owing to the fact that they are given by a large proportion of apparently normal persons owing to the partial immunity they have acquired. What is wanted for practical purposes is a reaction which shall demonstrate the presence of a specific lesion and its activity. Dr. EMERY went on to study the various methods which have been introduced for diagnostic purposes, depending upon the presence of specific antibodies in the serum—that is, upon a qualitative and quantitative study of the more definitely protective substances formed in response to infection—viz., antitoxins, precipitins, agglutinins, cytolysins, and opsonins, although he confessed to some hesitation in including the last-named substances among the antibodies, but only for technical reasons which do not affect their practical utility. Tests based upon the development of an antitoxin for tuberculous toxin, or of a precipitin for the protoplasm of tubercle bacilli, are rather of theoretical interest than of practical value, while little, if anything, is known of a bacteriolysin for this organism. The agglutinin reaction has, however, been used by various observers, but the difficulties encountered are such as to prevent its general application; moreover, the results obtained are not sufficiently characteristic to be of great diagnostic value, since, as Dr. EMERY stated, a case may progress from start to finish without showing the presence of agglutinin in the blood. The value of the opsonic index in diagnosis has been much debated, and it is now generally admitted that a single determination is only of value if it fall considerably outside the somewhat wide normal limits allowed for this index. A comparison of the results before and after exercise, massage of a local lesion, or injection of tuberculin is of much more value if the technique can be relied on. Certain methods have been introduced having as their object the estimation of the total antibodies. The first of these is the so-called meiostagmin reaction, which depends upon the lowering of surface tension occurring when an antibody and its corresponding antigen have been incubated together for two hours. The other method is the well-known Bordet-Gengou

reaction, depending upon deviation of complement by an antigen and amboceptor combination, red corpuscles specially sensitised by the addition of a specific hæmolytic amboceptor being used as the indicator. Reactions obtained by this method have given somewhat variable results, and Dr. EMERY maintained that since these antibodies for tubercle bacilli may be present in apparently healthy persons any method of studying them to be of use practically must be a quantitative one. He claimed to have discovered a comparatively simple modification of the Bordet-Gengou reaction for this purpose. He found that the absorption of complement in this reaction is on the average much shorter with serums from tuberculous patients than with those from normal persons. His method, therefore, consists in the determination of the "absorption time" of complement by these serums in the presence of the antigen, which is a standard emulsion of tubercle bacilli. The indicator is the usual emulsion of sensitised red blood corpuscles, and the absence of hæmolysis is the index of absorption of the complement. The technical details were fully described by Dr. EMERY and can be studied in his lecture. It is with the results obtained that we are more particularly concerned. In 34 cases of diseases other than tuberculosis and of healthy persons the average absorption time was 18·1 minutes, the maximum being 35 and the minimum 2·5. In tuberculous patients the absorption time was as a rule greatly diminished, the average being 7·4 minutes. Absorption times of less than 2·5 minutes were obtained in 25 out of 56 tuberculous serums examined. If this time be regarded as the criterion the test was obtained in 44·6 per cent. of tuberculous and in 8·8 per cent. of non-tuberculous. It is obvious, therefore, that this test is not absolute; moreover, tuberculous cases do not always give a shortened absorption time, and may indeed give a lengthened one, more particularly in the negative phase after inoculation with tuberculin. Some observations made upon this negative phase seemed to indicate that it was not due to, or at any rate not entirely due to, a diminution in the amount of antibodies in the blood, but more probably to a substance inhibiting the union of the antigen, amboceptor, and complement. Dr. EMERY'S method has therefore already proved of value, and we may endorse the plea which he urges for more careful investigation of the presence of antibodies in the blood in tuberculous diseases and of their quantities as likely to afford help in diagnosis, prognosis, and treatment. The bacteriological diagnosis of this disease is still far from satisfactory, and in view of the great importance of early recognition of cases of tuberculous disease we welcome any researches tending to further this aim.

The second of these lectures was devoted to a consideration of the nature of the Wassermann reaction, with a description of a simple quantitative modification already published by Dr. EMERY in THE LANCET.[1] The original Wassermann reaction is a special application of the general Bordet-Gengou phenomenon, and was indeed one of its early applications to diagnosis. It is, however, of interest to notice that recent work has demonstrated that the substance in the serum of syphilitic patients which gives the reaction is not a true antibody, and is, moreover, not specific, since it occurs in other diseases and in normal serums. The characteristic feature of the substance in syphilis is its presence in excess; hence the great importance of a quantitative method of applying the test. The explanation of the Wassermann reaction must necessarily be different from the ordinary instances of the Bordet-Gengou phenomenon where a specific antibody and antigen are concerned, and with this and other theoretical considerations Dr. EMERY dealt at some length. Into the details of his own method it is not necessary to enter; the advantages claimed for it are its simplicity and the ease with which it can be applied quantitatively. He concluded with some useful information regarding the results of the test and its diagnostic and prognostic indications. In the early part of the primary stage a negative result is of no value, but a positive reaction may be expected if the supposed chancre has been present for six weeks or more. Children and adults with hereditary syphilis as a rule give very strong reactions. In the later stages of the disease it may be stated that if the reaction is present the patient is not cured and a continuation of treatment is advisable. If there is no reaction it is more difficult to decide, since cases are stated to occur in which no reaction is obtainable at any time; but if a reaction has been present at one time, and it is subsequently found to be absent, the probability of cure is great, but it must be remembered that mercury itself inhibits the reaction, so that a negative reaction while the patient is under mercurial treatment is not to be taken as evidence of cure. Dr. EMERY'S lectures are an interesting practical contribution to our knowledge of an important subject and will repay careful perusal.

[1] THE LANCET, Sept. 3rd, 1910, p. 732.

Psychological Medicine and Social Problems.

MEDICAL pluralism is an institution which finds a good many critics nowadays, but even those who are loudest in its dispraise will admit that it may sometimes have compensatory advantages when it affords to a competent observer an opportunity of seeing at once several different aspects of a complex and many-sided problem. How much such an opportunity, wisely used, may contribute to clarifying and defining our views on a question of great present importance is strikingly shown in a very interesting volume recently published by Dr. HELENEFRIEDERIKE STELZNER under the title of "Die Psychopathischen Konstitutionen und ihre Sociologische Bedeutung" (Berlin, KARGER, 1911). Fräulein STELZNER is a pupil of Professor ZIEHEN, and she adopts that alienist's well-known views regarding the characteristics and position of those cases of mental abnormality which he includes under the title of "Psychopathische Konstitutionen," a group of not very clearly defined limits which corresponds perhaps most nearly in our phraseology to the "borderland cases" so inimitably described by MAUDSLEY. Individuals belonging to this class, by reason of their incapacity for social adaptation, come into conflict with their environment at many different points, and so form an element, and a very disturbing element, in

many different bio-social problems. As varying circumstance determines, they will appear at one time as criminals, at another as lunatics, or, again, as inebriates or vagrants or prostitutes; and the observer who sees them in one and only one of these phases is naturally disposed to exaggerate their tendency to the particular form of anti-social activity which comes into his sphere of observation.

It is the good fortune of Fräulein STELZNER that she is able to take a more comprehensive view, for in addition to her opportunities of studying this morbid temperament in Professor ZIEHEN'S psychiatric clinic at the Charité and in his polyclinic, she can draw on her experience as physician to a reformatory for girls, as school doctor, and as alienist expert to the court for juvenile offenders at Berlin. Her opinions, therefore, are the outcome of an exceptionally wide survey of the question which she discusses; and as many details of that question are engaging attention in this country at present we may learn some useful lessons from her experience. The main conclusion emphasised in her work is that the prevalence of the psychopathic diathesis is very much wider and its importance from a sociological point of view very much greater than it has been customary to assume. As becomes a pupil of Professor ZIEHEN, Fräulein STELZNER lays much stress on the exact determination of intellectual capacity, relying for this purpose on the methods devised by Professor ZIEHEN and described by him in his "Prinzipien und Methoden der Intelligenzprüfung" (Berlin, 1908). And she maintains that the failure to apply such tests systematically to children who appear backward at school leads to the inclusion of morally deficient and abnormal children in classes for the mentally defective, with results which are fraught with evil both for the borderland cases, which do not receive the appropriate guidance and control that they need, and for the intellectually feeble, who are dominated and corrupted by the quick-witted but unstable and frequently perverse children of the psychopathic group. Instances are, of course, not uncommon where psychopathic symptoms are met with in children who are also intellectually defective, but it appears to be Fräulein STELZNER'S experience that in such cases the intellectual weakness, if at all pronounced, is the practically important factor, so that children of this sort do not need to be segregated from the rest of the weak-minded. Such segregation, on the other hand, is imperatively necessary in the case of the psychopathic children, whose abnormality is shown mainly in the sphere of feeling and impulse. And it is equally important to separate such children from the normal but undisciplined children who, as juvenile offenders, truants, and so forth, form the ordinary population of reformatory schools. The system enforced in these institutions, designed as it is for individuals of normal disposition, is wholly unsuited for the morbid temper of the psychopathic child; not only does it fail to provide the special influences for developing such aptitudes for good as he may possess, but it provokes and stimulates his anti-social tendencies by the restraints of a rigid discipline. The reformatory constitutes, therefore, a peculiarly unfavourable *milieu* for children of this class, and Fräulein STELZNER maintains that such degenerates form a very large proportion of the incorrigibles who, in Germany as in this country, are quoted as evidence of the failure of the reformatory system. What they really show, as the authoress rightly insists, is the absolute necessity of a skilled psychiatric scrutiny of the children whom it is proposed to treat by these reformatory methods.

It would appear that the unwillingness to recognise the rôle of the psychologist in matters of reformatory education is not confined to Great Britain, though the reactionary tendency may not perhaps be shown in quite such an aggravated form in other countries as it is with us. The very fact, indeed, that a trained alienist like Fräulein STELZNER is attached as expert to the juvenile court of Berlin suggests a very instructive comparison with the attitude of our legislators, who, when they recently established juvenile courts by the Children Act of 1908, never, of course, entertained the idea that the mental condition of the youthful offender ought to be taken into account in determining the best method of treating him. Meanwhile, it is interesting to note that the experience gained in countries where it is considered worth while to make this question a matter of skilled investigation has found out, as Fräulein STELZNER tells us, one important reason why reformatories so frequently fail to reform. Fräulein STELZNER'S conviction on this point is, indeed, so strong that she does not hesitate to express the opinion that the whole elaborate and expensive machinery of juvenile courts, probationary supervision, rescue homes, and reformatories will prove very largely futile so long as no provision is made for the detection and segregation of these special types of mentally abnormal children. This is a view which ought to be carefully considered by the responsible authorities who will have to organise those larger schemes for the treatment of the feeble-minded and socially detrimental classes which are supposed to be contemplated in the legislation of the near future.

Thomas *v.* Barker.

THE action of THOMAS *v.* BARKER, which occupied Mr. Justice DARLING and a special jury for three days of last week and resulted in a verdict for the plaintiff with 20 guineas damages, has brought to the most satisfactory of all possible tests the claim which has been brought forward, by or on behalf of the defendant, to be the discoverer of methods of manipulating diseased or injured joints which are unknown to members of the surgical profession, and to be able, by the employment of these methods, to effect cures in cases in which the best surgical skill has failed. Mr. H. A. BARKER has for nearly 20 years, we understand from Mr. W. T. STEAD'S pronouncements, carried on business as what is called a "bone-setter," and appears, like many other medically unqualified claimants to the possession of exceptional skill, to have enjoyed the confidence of a large *clientèle*. The comfortable position thus attained, however, was regarded as incommensurate with his merits by Mr. STEAD, a journalist who has from time to time achieved various kinds of notoriety by methods which many persons would have been content to leave unpursued, and who has been conspicuous, among other things, for a general and sympathetic admiration of several varieties of quackery. Mr.

STEAD, in the *Review of Reviews* for October, 1910, devoted eight double-column pages to a eulogium upon Mr. BARKER, in the course of which the public were informed that "in the last 19 years Mr. BARKER has treated by a careful manipulative surgery, without shedding of blood or use of drug, save that necessary for the production of temporary anæsthesia, more than 30,000 cases. These have been selected from a much greater number which have been brought to the great bone-setter for treatment. Of these 30,000 cases about 99 per cent. have been cured, and in almost every case the patient had patiently submitted himself to the best or the worst that the regular doctors could do for his benefit. To put it in round numbers, 27,000 incurable cases—that is to say, incurable according to the recognised methods of the recognised practitioner—have now been proved to be curable." Mr. STEAD'S declared object was to urge that Mr. BARKER'S methods should be reported upon by a committee of surgeons, how to be constituted he did not show.

There can be no doubt that the formation of such a committee, if it had been formed, would have been a very valuable method of bringing Mr. BARKER'S name before the public, while there was then, and still is, grave doubt whether the public is losing anything by the attitude of surgery towards bone-setting. We did not take Mr. STEAD very seriously in our reply to his attack upon ourselves in the course of his article on Mr. BARKER. With elementary manners he had referred to the *British Medical Journal* and ourselves under the respective names of GOG and MAGOG (although we can perceive no manifest reason why those distinguished civic characters should have been dragged into the controversy) and complimented us both with a shower of abuse. We contented ourselves with recalling to mind the completeness with which the nature of the manipulations of successful bone-setters, and the conditions in which these manipulations were useful, had been laid before the medical profession, in the first instance in our columns, by Dr. WHARTON HOOD, more than 40 years ago; and, while admitting that some unqualified bone-setters had been dexterous, and even frequently successful, we expressed a doubt whether Mr. BARKER'S supposed knowledge of anatomy, apparently gained without dissection, but by the perusal of two excellent manuals, could be sufficient to furnish him with safe guidance in his operations. Mr. STEAD was furious. He has discovered in THE LANCET a statement to the effect that manipulative surgery was a neglected corner of the surgical art, and, without mentioning that this was written over 40 years ago in relation to then existing conditions, he now attempts to use it as an admission which we are making to-day, and does so with our article of Oct. 22nd, 1910, staring him in the face and acknowledged by himself with splutterings of abuse in the *Review of Reviews* for November, 1910. Yet in a letter communicated as a sort of circular to the provincial press, and dated Feb. 14th, 1911, we find the statement that we have admitted that "manipulative surgery is a neglected corner of the domain of surgery." When we said this it was the truth; it is not the truth now, and to represent THE LANCET as believing it to be the truth now is a falsehood.

The case of THOMAS v. BARKER displayed Mr. BARKER as a member of a craft which has nothing recondite in its methods, and does nothing useful for which instruction may not be found in the writings of duly qualified practitioners. Mr. BARKER indeed has thrown important light upon his own limitations. A few days before the case of THOMAS v. BARKER came on for trial he wrote a letter to the *Times* in which he said that the vaguest knowledge of etiology or pathology would enable its possessor to distinguish between tuberculous arthritis and simple traumatic adhesions. We doubt whether Mr. BARKER could find a single surgeon who would agree with his dictum in this matter, or who would deny that the diagnosis in question is frequently one of extreme difficulty. We publish in another column a verbatim report of Mr. Justice DARLING'S summing-up in the recent case. Few things can be less satisfactory, from a scientific point of view, than a trial of this kind as it is usually conducted, because it is frequently the aim of counsel rather to obscure than to bring out the truth, and expert witnesses are often prevented from putting the matter before a jury in the most intelligible way. In spite of the difficulties hence arising, the case of Mr. THOMAS was tolerably plain, particularly as put to the jury by the judge. Mr. THOMAS sustained an injury to his knee ten years ago, from which it had never recovered, and before he went to Mr. BARKER it was the seat of tubercle. Notwithstanding its condition, Mr. BARKER caused gas to be administered to the patient and then moved the joint to an extent and in a manner which were matters of dispute. The same thing was done upon a second occasion. The patient appeared to suffer no immediate ill-effect, but soon afterwards became so ill that the surgeons who were then consulted decided upon an immediate amputation of the limb. The joint was totally disorganised, but the plaintiff eventually made a good recovery, and in due time brought his action for the injury which he alleged that he had sustained. It is quite clear that Mr. BARKER was wrong in meddling with a tuberculous joint, but the amount of his interference remains in doubt. Presumably this is why the plaintiff did not obtain larger damages. His 20 guineas will probably not go far towards his costs as between solicitor and client; and hence the case will afford little or no encouragement to the subjects of Mr. BARKER'S failures to take similar proceedings against him. It will, however, we may reasonably hope, render Mr. BARKER more cautious in his future proceedings; for it is not likely that, in any second trial of the same kind, he would be treated by the jury with equal leniency if again convicted of negligence.

INTERNATIONAL CONGRESS OF PATHOLOGY (TURIN).—The Congresso Internazionale dei Patologi in Torino will take place from Oct. 2nd to 5th, 1911, in the Institute of Pathological Anatomy of the University of Turin. The Congress will coincide with the jubilee festivities celebrating the Italian independence. An invitation, dated Feb. 10th, has been issued inviting pathologists to take part in the Congress, and is signed by Professor P. Foà and Professor B. Morpurgo. The offices of the Congress are at the Institute of General Pathology, Corso Raffaello, 30, Turin, Italy.

Annotations.

"Ne quid nimis."

NURSING IN THE FEVER HOSPITALS OF THE METROPOLITAN ASYLUMS BOARD.

On Jan. 26th there came into force certain important changes affecting the nurses who staff the acute infectious hospitals of the Metropolitan Asylums Board. These alterations are the outcome of prolonged and careful deliberation by a special committee appointed for the purpose of reporting on the possibility of rendering the Board's fever service more attractive to the general body of women who take up nursing as a profession. In the course of its inquiries the committee was assisted by the opinions and advice of the matrons of the principal London general hospitals, and also by the matrons and medical superintendents of the Board's own hospitals. The three grades of nurses employed in the fever hospitals have hitherto been known as charge nurses, assistant nurses (Class I.), and assistant nurses (Class II.). In the acute hospitals they will henceforth be called sisters, staff nurses, and probationers. Sisters will receive a maximum salary of £44 a year as against a maximum of £40 for charge nurses, and will not be required to come on duty until 7.45 A.M. These alterations in the title and conditions of service, together with the prospect of obtaining a certificate of fever training at the end of 12 months' work, should prove an attraction to nurses who have just completed their training in the London general hospitals. Staff nurses will be paid a maximum salary of £30. Candidates who desire to join the Board's service as staff nurses must have had three years' training at a general hospital, Poor-law infirmary, or children's hospital containing at least 70 beds; or they must hold a certificate of fever training. It should be noted that when the new scheme came into operation on Jan. 26th charge nurses and first assistant nurses did not automatically become sisters and staff nurses, but only those who possessed the necessary qualifications and were recommended for promotion by the matrons and medical superintendents. Special consideration was given to the probationer section of the nursing staff, and some most important alterations have been made in the conditions of service in the hope of attracting to the Board's hospitals a larger number of women of good education. Hitherto assistant nurses (Class II.) have been liable to be transferred from one hospital to another, and to be given a month's notice when their services were no longer required, while they were unable to obtain a certificate of fever training. Such conditions were hardly likely to prove acceptable to women who desired to take up nursing as a profession. Under the new scheme a limited number of probationers will be appointed at each hospital who will not be liable to transfer, while if they are considered satisfactory at the end of three months' probation the Board will undertake to retain them in its service until they have completed two years' work. During this time they will be given systematic instruction, both in the lecture room and the wards; and if they pass the examination at the end of their two years' training they will obtain a certificate of proficiency in fever nursing and be eligible for promotion to the grade of staff nurse. These are not inconsiderable inducements to enter as a probationer at one of the Metropolitan Asylum Board's fever hospitals, but there is yet another, and that by no means the least. Certain of the general hospitals have agreed to accept each year from the Metropolitan Asylums Board a fixed number of probationers who have satisfactorily completed two years' fever training, provided they are considered suitable by the matrons of those hospitals. Further, those general hospitals where nurses are required to join for four years have undertaken to count the two years' work under the Board as equivalent to one year's work with them, so that the Board's probationers will join those general hospitals as second year's nurses and be paid accordingly. As they can enter the service of the Metropolitan Asylums Board at the age of 21 it will be possible for them at the age of 26, after five years' work, to hold a certificate of fever training in addition to one of full general training. This attempt to establish a system of coöperative training between fever hospitals and general hospitals will be watched with interest. For the sake of the fever hospitals it is to be hoped that it will prove a success, but in any case the Metropolitan Asylums Board is to be congratulated on its adoption of the scheme to which the special committee, under the guidance of its chairman, Mr. Jackson Hunt, has devoted so much time and consideration.

WHOLESOME BREAD.

We have received a number of requests to make an analysis of samples of "standard" bread which have been submitted to us by interested persons. It is quite impossible for us to deal with the multiplicity of applications which have reached us. We approve of standard bread when that expression means simply that the flour used in making the bread is unimpoverished by methods of manufacture—that is to say, when the entire nutritive portions of the wheat berry are retained. In our opinion the husk or the bran should be excluded. Apart altogether from the more appetising qualities of unseparated flours and the more generous proportion of valuable nutritive bodies which they contain, there are also principles in them which favour the assimilation of their constituents, which are absent in the separated flours. The best guides to truly wholesome bread are its peculiarly attractive flavour, which is somewhat sweet, and its colour, which is a dull light brown. Fraudulent imitations consisting merely of separated flour coloured with bran are practically flavourless. We hope that the question, now that it has attracted public attention, will be dealt with thoroughly, as it is obvious that more harm than good may be done by the movement in favour of "standard" bread, unless some security is afforded to the public in regard to procuring a genuine article. We are inclined to believe that the public can protect themselves in this matter, but a Government inquiry might have its uses.

WHY SURGEONS BECOME SURGEONS.

It must have occurred to many a medical man, especially when at medical gatherings, to wonder, perhaps half-unconsciously, what influence had determined this person or that into the pursuit of medicine. A little insight into this personal aspect has a genuine fascination. Dr. Francis Reder of St. Louis, with the true American instinct, has displayed the courage of his curiosity as to how it happened that surgeons became surgeons, and addressed letters of inquiry on the point to a number of surgeons—German, Italian, English, and American—who have accomplished things in surgery. He received very cordial and gratifying replies from 39 correspondents, which he appends to the Oration on Surgery delivered by him at the annual meeting of the Missouri State Medical Association in 1910, and published in the journal of that association for November. And very interesting reading the replies are. As will be readily understood, in most cases more than one factor was at work to determine the result. Fifteen (among whom may be named Dr. Roswell Park, Dr. W. W. Keen, Mr. John Chiene, and Mr. J. Bland-Sutton) possessed a natural inclination from childhood, and in six of these (including the Mayo brothers and Mr. Thomas Bryant)

parental example played a part. Admiration of a particular teacher—of Billroth (by Czerny and Hacker), of Langenbeck, Novaro, R. F. Weir, Durante, J. R. Wood, of Czerny (by Steinthal), and of Lister (by H. O. Marcy)—turned the student's bent toward the surgical side of the profession in ten cases, and in two cases admiration of the work done by the family medical attendant played a part. Personal experiences of surgical intervention *in propria persona* influenced three, while two received the impetus towards surgical work through experiences respectively in the Franco-German war and the United States war of the Rebellion. An American surgeon of note (Dr. J. A. Wyeth) confesses to having been prompted by "an ambition to do things that the vast majority of human beings could not do or did not like to undertake," and is of opinion that "surgery requires more courage than I felt it necessary to have to charge a battery or to do dangerous scout duty." We fear that will depend on whether the sense of responsibility to others is more highly developed than that of mere personal safety. Six surgeons own up to the fact that it was just the fortunate concurrence of a special opening in surgery that turned their thoughts in that direction; while six others, among whom are Sir Victor Horsley and Mr. F. F. Burghard, made surgery rather than medicine their choice from a consideration of the greater certainty of the benefits it was capable of conferring, in their opinion, upon humanity and of the more tangible evidence of its results than those of medicine. A natural taste for mechanics impelled two to the surgical side of the profession, while one was impelled to take up surgery through the exigencies of gynæcological work. In many cases it is noticeable that the first trend of the mind towards the medical profession was influenced by natural science studies. Among these is Dr. Howard Kelly, whose further specialisation was determined by the fact that in the "eighties" gynæcology offered a large field for original work and investigation.

HARDWARE IN THE STOMACH.

FROM time to time there appear in the medical journals extraordinary catalogues of foreign bodies found, usually at necropsy and much less often at operation, within the stomach of an insane person. Our Vienna correspondent this week describes two such cases. That such aggregations should be tolerated by the stomach for long periods of time is surprising enough even when they consist of soft and yielding substances, such as the hair which becomes matted together to form a hair-ball; but when post-mortem examination of a person who has never shown the smallest sign of gastric discomfort discovers within the stomach a multitude of metallic objects, sharp, rigid, difficult to swallow and dangerous to retain, the only possible explanation of such an extraordinary insensitiveness must be found in the fact that the metal-swallower had been demented for years. A truly remarkable instance of this insane propensity is the case of a mulatto woman, aged 33 years, admitted in 1903 to one of the Missouri State hospitals with acute mania, ending in dementia and caused by excess in cocaine and morphia. From this time until September, 1910, when she died in the hospital, she never showed the least sign of disease of the digestive system. The attendants often saw her picking up nails and pins, but no one had seen her swallow any. Death was due to nephritis, and until a week before her death she never refused her food. Dr. A. H. Vandivert and Dr. H. P. Mills, who made the necropsy and reported the case in the *Journal of the American Medical Association* of Jan. 21st, were surprised to find the fundus of the stomach stretched down in a long pouch which reached into the left iliac fossa and adhered to the parietal peritoneum in that region. In this sac lay a hard mass which proved to consist of a large number of foreign bodies, leaving a narrow channel for the transmission of food along the lesser curvature. Adherent to the peritoneum of the stomach was the great omentum, remarkably thickened, and enclosing a number of small abscesses which represented the points at which the foreign bodies had made a way through the wall of the stomach, general peritoneal infection being averted only by the omental adhesion. The mucous membrane of the stomach was atrophic throughout and ulcerated in patches; the submucosa was infiltrated with round cells, and the subserous connective tissue exhibited a general dense fibrosis. Ulcers and widespread erosion were also seen in the mucous membrane of the œsophagus. In addition to the foreign bodies in the stomach there was a needle in the œsophagus and another at the base of the left lung. The foreign bodies in the stomach weighed 2268 grammes (5 pounds avoirdupois) in the aggregate, after thorough washing, and consisted of 453 nails, 42 screws, 136 ordinary pins, 115 hair-pins, 105 safety-pins, 52 carpet tacks, 63 buttons, and a miscellaneous collection of bolts, metal nuts, teaspoon handles, thimbles, needles, beads, coat-rack hooks, fruit seeds, stones and pieces of glass, and all sizes and shapes of similar objects, the total number being 1446. The writers have arranged this scrap-heap in rosette form for purposes of photography, and have thus achieved an extraordinarily vivid picture of the possibilities of the human stomach.

THE CENTRAL ASSOCIATION FOR THE AID OF DISCHARGED CONVICTS.

Mr. Winston Churchill is to be congratulated upon the initiation of an agency which will have as its duties the direction and coördination of the existing agencies which have hitherto sought to assist and control convicted persons after their discharge from prison. These agencies have worked with good results in some instances, with unavoidable failure in many cases, and with lack of success in others, due to inadequate means at their disposal, to waste of energy and overlapping, and to other causes which the new Central Association is instituted to prevent. They have also endeavoured to carry out a difficult task, which, indeed, might often be described as a hopeless one, without any direct provision for their assistance from the State, for whose benefit their work is done no less than for that of the individuals immediately affected. Under the new scheme a general council is to be formed, composed of two representatives from each of the following bodies—the Royal Society for the Aid of Discharged Prisoners, the Church Army Discharged Prisoners' Aid Society, the Salvation Army Discharged Prisoners' Aid Society, the Catholic Discharged Prisoners' Aid Society, the United Synagogue Discharged Prisoners' Aid Society, and the Borstal Association, under the presidency of the Home Secretary, with Sir E. Ruggles Brise as chairman, Mr. Wemyss Grant Wilson as vice-chairman, and Mr. Basil Thomson as honorary treasurer and secretary. It will be observed that the associations representing various phases of religious thought which have hitherto been associated with this particular branch of charitable effort are rightly represented upon the council, but it may be suggested that the usefulness of the new body would be materially strengthened by the infusion into it of a medical element. In a large proportion of cases those who come under the cognisance of the central agency will owe their position and their need for assistance, control, and supervision as much to defective mentality as to the other causes which contribute to turn potentially good citizens into criminals. There will also be others whose physical condition will have to be closely considered and appreciated before suitable aid can be administered, and the observation of such temporary physical

conditions as may be due to recent experience of prison discipline will form a useful subject of study for which the Central Association will have considerable facilities. The opportunity to investigate the conditions, mental and physical, of convicted persons who have regained their liberty has been enjoyed by the existing agencies but without the additional power to bring them directly to the notice of the Home Office, a power which an association the president of which is the Home Secretary himself must enjoy to the fullest extent. Such investigation could have no useful result unless made officially and independently of prejudice of any kind by men qualified by training and experience to make it. Under the authority of the new association it should be possible to conduct it simultaneously with the exercise of the benevolent object for which that body has been primarily instituted, and with only a limited necessary outlay which would be likely to be recouped in due course to the State by the saving of a proportion of the expenditure caused by recidivism.

THE CARE OF SICK SAILORS IN GERMANY.

A CONVALESCENT home for German seamen has been built at Zehlendorf in the Grünewald, near Berlin, by a philanthropic association constituted, under the inspiration of the Emperor and Empress, in 1908 with this particular object. Convalescent homes there were for the army and for other professions, but none for the sailors. That has now been changed, for this home will take seamen of the Imperial Navy or of the mercantile marine, as well as soldiers from the colonial or protectorate troops, to the number of 60, and also their officers to the number of 15. Retired and half-pay officers may be received if there is room. No serious cases requiring much attention can be received and no contagious diseases. The accommodation and recreation rooms for men and officers are quite separate; there are smoking and writing rooms for each with all the foreign military and naval papers, and a good library. For their treatment there are douche, steam, and electrical baths, and even a small swimming-bath. There is central heating and electric light throughout. The association has provided the site and the house; the medical treatment and maintenance are secured by a charge of 3*s.* 6*d.* daily for each man, 4*s.* 6*d.* daily for junior, 5*s.* 6*d.* for senior officers. The navy has taken ten beds, and it is hoped the large shipping firms will each similarly annex others. The estate is a forest, of which few trees have had to be sacrificed to the building, and it is hoped that this sanatorium may be of great benefit to those for whom it is planned.

A HISTORY OF THE CAVENDISH LABORATORY.[1]

AFTER having successfully provided in the years 1864 and 1865 accommodation for the study of zoology, comparative anatomy, human anatomy, chemistry, mineralogy, and botany, the University of Cambridge turned its attention to the needs of the students who wanted instruction in heat, electricity, and magnetism. The prospect of expenses, however, very nearly defeated the good intentions of the syndicate which was formed to this end and which reported in favour of founding a special professorship and of supplying the professor with the means of making his teaching practical. It was not until October, 1870, that the opportunity came for making a real start with the Cavendish Laboratory. The Duke of Devonshire expressed a desire to carry out the recommendation of the syndicate, adding that he would be prepared to provide the funds required for the building and apparatus. Owing to a decision of the heads of the Colleges that the sums required under the Cambridge Improvement Acts should be levied by assessment instead of being charged on the University chest, the already heavy burden upon it was lightened, and amongst the new professorships founded was that of experimental physics, and the first professor of the Cavendish Laboratory, that distinguished physicist James Clerk-Maxwell, was elected on March 8th, 1871. The inaugural lecture was delivered on Oct. 25th in the same year. Clerk-Maxwell was succeeded on his death in 1879 by Lord Rayleigh, who in turn resigned in favour of the present professor, Sir J. J. Thomson, in 1884. In 1909 Sir J. J. Thomson completed the twenty-fifth year of his tenure of the Cavendish professorship, and it was this fact which gave rise to the suggestion by his immediate colleagues that the occasion should be celebrated in some way which would fitly commemorate a tenure so long and so full of achievement. A most interesting volume recording the history of the Cavendish Laboratory has since been issued, and it forms, we think, a very appropriate consummation of the foregoing suggestion. The University of Cambridge may well be proud of the valuable contributions which have been made to physical science as a result of the foundation of its Cavendish Laboratory, and it has been said with truth that perhaps there is no post in the world which has been held successively by three men of such great and such varied genius as Clerk-Maxwell, Rayleigh, and Thomson, who have made the Cavendish Laboratory known throughout the world. The transactions of the learned societies record what valuable work has been done, and it is now most interesting to discover in the book referred to how that work came to be done, in a series of monographs contributed by competent writers like T. C. Fitzpatrick, Arthur Schuster, R. T. Glazebrook, H. F. Newall, E. Rutherford, C. T. Wilson, N. R. Campbell, L. R. Wilberforce, and the present professor himself. The history is a splendid record of scientific work and education.

[1] A History of the Cavendish Laboratory, 1871–1910. With three portraits in collotype and eight other illustrations. London: Longmans, Green, and Co. 1910. Pp. 342. Price 7*s.* 6*d.* net.

DIPHTHERIA OF THE VULVA IN A CHILD.

DIPHTHERIA of the vulva or vagina is very rare, and has been observed in two conditions—in the puerperium and in children. In 1898 Whitridge Williams recorded the case of a woman who on the twelfth day of a normal puerperium began to complain of pain and swelling in the vulva. The inner surface of the labia majora and minora was covered by a greyish-white membrane which extended a short distance up the vagina. The diphtheria bacillus was found, and recovery took place under antitoxin. The infant and an elder child were subsequently attacked with diphtheria and died. In necropsies in cases of puerperal septicæmia dirty-greyish or yellowish membrane is frequently found in the uterus and vagina, and has been described in the older works as diphtheria, but is generally due to necrosis produced by the streptococcus or other organism. Very few cases of diphtheria of the vulva in children have been recorded. It may be primary or secondary to diphtheria of the throat. In the *New York Medical Journal* of Jan. 7th Captain L. L. Smith, of the Medical Corps of the United States Army, has reported the following case. On March 15th, 1910, he was called to a girl, aged three years, who was suffering from slight cough with a little pyrexia. The throat and nose were examined with negative result, and in a day or two she seemed to have completely recovered. A few days later he was again called to see the child, as attempts to micturate were unsuccessful and caused her to cry with pain. The meatus urinarius and labia minora were slightly inflamed and swollen. There was some mucoid vaginal discharge, but no membrane was seen. As hot applications to the vulva and lower abdomen failed to produce micturition a catheter was passed. The urine was

normal. An alkaline diuretic was prescribed and micturition became possible but attended with great pain. The temperature was 100° F. On the next day there was slightly muco-purulent vaginal discharge, which was examined for the gonococcus by Gram's method with negative result. As there was no evidence of diphtheria of the throat or nose, this disease was not suspected and cultural methods were not employed. On the following day the discharge had increased slightly and there was some exudation on the labia minora, but no well-defined membrane. The inguinal glands were slightly enlarged and tender. A blood serum agar tube was inoculated and sent to the curator of the Army Medical Museum in order to determine the character of the infection. He reported that the specimen showed an almost pure culture of the diphtheria bacillus. Eight thousand units of antitoxin were administered and within 24 hours the urinary symptoms began to subside. Five thousand units were subsequently given and in a day or two the symptoms had disappeared. A slight greyish membrane separated from the labia minora and from part of the labia majora. Complete recovery without any complications followed. As soon as the infection was found to be diphtheria, and before antitoxin was administered, blood-serum tubes were inoculated from the secretions of the nose and throat with negative result. The only source of infection which could be suggested was a female guest from a locality where there had been cases of diphtheria. She visited the family two days before the child was taken ill and had a bad "cold," but was not ill enough to seek medical advice. She used the bathroom is which the child was bathed daily. Possibly a towel used by her was also used in drying the child, who was thus infected by a diphtheria carrier.

"INFLUENZA" AMONG CATS.

As to whether the members of the feline tribe can rightly be set down as the subjects of "influenza," such as is understood by the term when applied to the human species, is a point upon which there has been considerable controversy. The differential diagnosis between "influenza" and "distemper" is often only a matter of opinion, and most veterinary surgeons would diagnose the ailment under the latter name. Distemper of the cat is a well-recognised complaint and very often occurs in such a virulent form as to clear out a whole cattery, causing a loss to the owner in some instances of many hundreds of pounds. In several parts of England at the present time epidemics of distemper are raging in a most fatal and virulent form, and veterinary experts have been called in wherever the value of the animal has permitted of the adoption of such a course. It is well recognised that the disease is spread very rapidly by the habits cats acquire of associating together, especially at night time, and that it is a disease which is very difficult to treat satisfactorily owing to the obstinacy and lack of vital resistance of the patient. A cat taken ill with this disease voluntarily refuses all nourishment and will die if not properly and artificially fed and kept thoroughly warm. In some instances the digestive system becomes affected, ulcers appear in the mouth, and there is a persistent diarrhœa and dysentery. In other cases the throat is violently inflamed, saliva streams from the mouth and lips, and the poor beast looks the picture of abject misery. Although it has never definitely been proved that this disease has actually been transmitted to man, it is certainly a wise precaution for the medical adviser of a household to insist upon the strict isolation, especially from children, of a cat suffering from any symptoms of this kind. In some instances death occurs within three days, but in most cases the cat will linger for a week or longer. Recovery is never certain, but when a cat has begun voluntarily to feed again the convalescence is tolerably rapid. Knowing from the daily press that the disease is prevalent just now among cats, we think that it would be an exceptionally good opportunity for practitioners, who may happen to be in infected district, to endeavour to trace up authentic instances of infection from cat to man.

BILHARZIA IN EGYPT.

Dr. E. Zweifel, of the German Deaconesses' Hospital in Cairo, has very carefully examined the blood in 20 cases of the prevalent "Egyptian chlorosis," and has reported his results in the *Archiv für Schiffs- und Tropen-Hygiene* for February. In all of them bilharzia ova were found in either fæces or urine, but only five could be said to be infected with ankylostoma, which is usually declared to be the cause of the disease. He quotes with approval Kautsky's statement that the healthy lower classes in Egypt have a hæmoglobin content in their blood only 80 or 90 per cent. of that in Europeans, while in persons infected with bilharzia this is reduced to 70 per cent., and is not further lowered by an added infection with ankylostoma. The red corpuscles are reduced to 4,500,000 per cubic millimetre; the colour index is less than unity; the leucocyte count approximates 9750 in uncomplicated bilharziosis, but goes down to 8000 if ankylostoma is present as well; mononuclears are reduced, and eosinophiles are always increased. Full details are given and should be compared with the account of 50 cases in the paper by S. R. Douglas and F. W. Hardy that appeared in THE LANCET of Oct. 10th, 1903, p. 1009. The writer concludes that bilharzia is very prevalent in Egypt (he says that hæmaturia is almost universal and scarcely considered abnormal), and as it sets up a severe anæmia materially weakening the working power of the men, it is clear that it must materially diminish the work done in Egypt, the earnings of the people, and therewith, the revenue. So the Administration may find it well worth their while to spend money on investigation of the disease with a view to prevention and subsequent and consequent increase of the revenue hereafter.

CONCERNING PRESCRIPTIONS.

A CORRESPONDENT under the pseudonym "Lex" recently informed us of a curious question which had come under his notice with regard to the prolonged and repeated use of prescriptions and to the rights with regard to them which may be claimed by patients. A druggist made up a prescription for a patient more than 12 years ago, kept a copy of it in his books, and from that copy dispensed the prescription on subsequent occasions for the benefit of the same customer. He has recently been asked by a solicitor, who is a relative of the patient, and presumably has the patient's authority for making the demand, to supply a copy of the prescription, and he has replied by declining to do so. "Legal proceedings" have since been threatened, presumably with a view to compelling the druggist to make from his books a copy of the copy contained in them, and to hand it to the patient who at one time obtained the original from a medical man and who possibly has lost it. We suggest another possibility with regard to the somewhat singular demand, as to the supposed motives of which we are not informed—namely, that the copy may be desired for comparison with the original in order to ascertain whether the medicine supplied is that ordered by the medical adviser of the patient so many years ago. Possibly it may not be found so efficacious now as when it was dispensed for the first time, but we are not concerned at the moment with the question whether a patient is wise to take during an indefinite period a medicine ordered on

some previous occasion by his medical attendant, but with the allegation of his right to a copy of a druggist's copy of the document ordering it. So far as the information before us enables us to do so we have considered the matter and on our side we ask this question: In the absence of any express contract to supply copies at any future date on demand, is there any contract to do so on the part of the druggist to be implied from what takes place when a patient brings him a medical man's prescription in order that it may be made up? In the ordinary circumstances of such a case we cannot conceive that there is any implied contract of this kind, and apart from a contract express or implied we do not see how any right enforceable by law to have a copy so made can arise. We are not aware of any custom requiring a druggist to furnish copies of prescriptions on demand, or of any case in which such a claim as that described has been carried into a court of law, and we hope we shall be informed if legal proceedings in fact follow upon the threat described by "Lex." Of course, legal proceedings are conceivable in which the court might order a dispenser to produce his books, but that is not the point we are considering. We have not considered closely what might arise in defence as to a time limitation for the enforcement of such a contract as we have suggested, for that would no doubt be gone into by the legal advisers of the threatened druggist after the first step in the proceedings had been taken by the other side.

SLEEPING IN THE OPEN AIR.

IN the January number of the *British Journal of Tuberculosis* there is an interesting article by Dr. Thomas Spees Carrington, assistant secretary of the American National Association for the Study and Prevention of Tuberculosis. It is entitled "Directions for Living and Sleeping in the Open Air," and is written primarily for the instruction of patients in America desirous of carrying out the principles of the open-air treatment of tuberculosis at home, but English readers will profit from its lessons. The article is written simply and is admirably practical, full directions being given and the approximate cost of any apparatus or building recommended being stated. The best methods of constructing outdoor shelters, of building small shacks or cabins on the flat roofs of tenement houses, and of arranging for the patient to sleep and live in a porch or verandah under open-air conditions but sheltered from wind, rain, and snow, are clearly described and illustrated by photographs. When such constructions are not practicable, as, for example, in tenement houses in cities, the use of a bed tent is recommended, and full directions are given for its construction out of simple and inexpensive materials. The use of bed tents is more common in the United States than in this country, and is certainly worth a trial. The patient's bed is placed alongside an open window and a small canvas tent is erected over the patient's head and attached to the casing of the window and to the bed, so that the head and shoulders are practically in the open. Useful and ingenious contrivances are described composed of mosquito netting fixed over barrel hoops to cover the patient's bed completely, so as to act as a protection from mosquitoes and flies in tropical climates. Directions are given in regard to clothing, the making of the patient's bed, the arrangement of pillows, and protection from draughts. Among many useful hints in which the article abounds we may mention the suggestion that two pillows should be placed in the form of an inverted V, the apex being at the top of the bed, and the patient's head lying where the two pillows meet, so that his shoulders nestle between them and are protected. It is also advised that to prevent chilling the patient should get into bed indoors and then be wheeled into his outdoor shelter if this is practicable. Dr. Carrington's article is well worth perusal by any practitioner who has tuberculous patients under his care, and might be read also with advantage by the friends of those suffering from the disease.

THE FUNDAMENTAL BASIS OF THE VOCATION OF MEDICINE.

THE persistent attempt to commercialise the profession of medicine that may be seen operating in varying degrees throughout the civilised world is defended by its supporters by the argument that this is essentially the commercial age. More and more are we urged to consider the fact that after all the practice of medicine is a business, in that it is a means of livelihood, and that consequently it ought to be conducted on business methods. This argument has cropped up in the recent perennial discussion on medical fees. "Senior," who started the correspondence in the *Times*, displayed all through his letter an underlying incapacity to understand that there need be any essential difference at all between the practice of medicine as a means of livelihood and any other business occupation. Yet it is undoubtedly the case that in all times the highest and worthiest thought in medicine has considered that there is a fundamental and unbridgeable chasm between the practice of the healing art and all commercial pursuits of whatever kind. The general principle on which this decision is based has been incisively and lucidly enunciated recently by Dr. Robert T. Morris in his report as trustee of Cornell University. In dealing with the subject of medical education Dr. Morris says: "The law of survival of the fittest does not work out in the professions as it does in the trades, because it is the public that has to bear the consequence of competition among physicians, and the fittest to survive is not always the one who represents the best interests of the public and of the profession." Method is, of course, as desirable for physicians as for anyone else, it is absolutely essential in science, and consequently in that aspect of medicine which depends on science. It should be cultivated in the extra-scientific aspects of the practice of medicine—the obligations between the medical man and the public—and in so far as the word method is synonymous with business the medical practitioner should surely be business-like. But his methods must be the special methods that accord with the spirit of the above-mentioned general principle—not the "customs of the commercial world." These, worthy of respect though they may be at the hands of the commercial man, are based upon first principles essentially different from those upon which the practice of the healing art has been from time immemorial established.

THE Local Government Board has issued an Order enabling the Metropolitan Asylums Board to utilise spare accommodation in the hospitals of the Asylums Board for the reception and treatment of additional classes of poor persons. Under the authority thus conferred upon it the Asylums Board will be enabled to receive from any of the Poor-law authorities of the metropolis children suffering from measles or whooping-cough into any of its hospitals or parts of its hospitals where there is vacant accommodation. It is understood that some 1000 beds will be available for these cases.

ON the retirement of Dr. Franklin Parsons, assistant medical officer of the Local Government Board, and Dr. Bruce Low, second assistant medical officer of that service, Dr. Theodore Thomson and Dr. G. S. Buchanan have been appointed respectively to these posts. Dr. Buchanan, for the last five or six years, has acted as chief inspector in the new division of the medical department which has been set up

to deal with questions of the purity of food and the prevention of adulteration.

THE number of small-pox cases in the epidemic in the East-End of London had reached over 40 by the middle of the week. Close supervision of suspects is being practised.

Professor W. E. Dixon, Professor W. H. Lang, Professor R. Muir, and Professor J. B. Leathes are among the candidates recommended by the Council of that body for election to the Royal Society.

BONE-SETTING AND ITS GENERAL PRINCIPLES.

BY FRANK ROMER, M.R.C.S. ENG., L.R.C.P. LOND.

SINCE Dr. Wharton Hood in 1871 described from personal observation the methods employed by Hutton, a leading bone-setter of the day, many surgeons have adopted, with satisfactory results, similar or modified principles. This article is submitted with the object of dispelling the popular notion that the medical profession know nothing of bone-setting, while at the same time drawing attention to the general principles which should be observed in dealing with joints whose utility has been impaired by adhesions. No useful object will be served by describing the pathology of the various ankyloses, and for the purposes of this article it may be assumed that reference is made to fibrous adhesions caused mainly by trauma. Again, though treatment by bone-setting is usually rapid and effective, it must be remembered that a cure could in many cases be achieved by electricity, prolonged massage, or other means.

Adhesions may appear within three weeks of the injury, but their capability of interfering with the action of a joint depends to a large extent on their situation. They may exist within the joint itself, binding together the articular surfaces and folds of synovial membrane, or be entirely periarticular when the surrounding tendons have become adherent to their sheaths through tenosynovitis. The resulting disability may vary from complete ankylosis of the joint to a condition where pain is only elicited by some particular movement. An important point to bear in mind is that a joint need not be entirely incapacitated by adhesions to require manipulation. Indeed, in these days of early massage and movement complete ankylosis is rare compared to what it was in the time when absolute rest was considered essential for the treatment of bone and joint injuries. Hence it frequently happens that the possibility of some small adventitious band is not suspected, provided the joint moves with comparative freedom, and it is especially in these cases that the modern bone-setter proves so successful. Careful examination in such cases will reveal a painful though comparatively slight interference with the normal range of movement, to cure which forcible manipulation will be just as necessary as in joints whose action is entirely crippled by adhesions. Some authorities state that previous to attempting these operations on ankylosed joints careful preparation for a week beforehand by hot fomentations and massage is essential. These preliminaries are not needful, though perhaps in certain cases of long standing, where the whole limb is stiff from disuse, a few radiant heat baths combined with massage might prove useful by rendering the muscles more supple. Again, it has been suggested that in such circumstances tenotomy should be previously performed, but proper attention to the after-treatment makes this a quite unnecessary procedure.

Unless contra-indicated, when adhesions are to be broken down an anæsthetic must always be given, not so much for the avoidance of pain as to ensure complete relaxation of the muscles. By dispensing with an anæsthetic the difficulties of the operation are increased, as it will be necessary to overcome muscles which the patient will involuntarily put into action for the protection of the joint, before the adhesions can be satisfactorily ruptured; at the same time, a risk is run of severely spraining or rupturing the contracted muscles. it is for the same reason that nitrous-oxide should not be selected as the anæsthetic, and it is possible that where severe inflammation has followed forcible movements these points have not been observed. Where manipulation has been properly performed no untoward result need be feared, as there is nothing in the rupture of fibrous bands to cause inflammatory action provided the case is otherwise suitable.

Generally speaking the movements should be performed in a swift, even, and firm manner, so that a joint undergoes the motions of its normal action, though not necessarily to the full extent of its range. The reason of this is that the muscles will have contracted in proportion to the limitation of movement permitted by the adhesions, and once that limit has been overcome the contraction of the muscles will be the only impediment to the normal range. The adhesions once ruptured after-treatment will speedily restore the elasticity of the muscles, which might well be strained should the full extent of movement be at once sought. In cases of long standing the adhesions yield with a distinct audible snap or crackle, others of less duration with the noise of tearing wet parchment, whilst those of still more recent date, though giving no audible sound, can generally be felt by the fingers of the operator. Experience shows that rapidity in the execution of the movements gives rise to far less after-pain than if the adhesions are broken down by slow and deliberate stretching, but care must be exercised against jerks or undue violence. When taking hold of a limb the grasp should be just above and just below the affected joint, for though a more powerful leverage can be obtained by more distant grips, yet it is as well to bear in mind that other structures may be broken besides adhesions, whilst in the young there is danger of separating the epiphyses.

After-pain is certain to be present in varying degrees, but will pass off in the course of an hour or so, and provided sufficient care has been taken in the operation no apprehension need be felt on this point. Within a few hours the joint should be gently massaged and movements aided. The mere allowing a joint to remain quiescent for 48 hours, as is sometimes recommended, is not safe; sufficient time may thus be given to allow the freshly ruptured adhesions to reunite. Notwithstanding the pain, every effort should be made to keep the joint free, and on no account should any bandage or splint be applied. It will be found that the rubbing, if skilfully performed, gives great relief from the pain, and any local application is scarcely ever requisite.

Occasionally full movement and freedom from pain follow the manipulations, but this ideal result is rare. More often a patient is quite unable to move the joint beyond the extent obtained under the anæsthetic, the explanation being that though there is no longer mechanical obstruction in the joint, the muscles from disuse are so wasted and contracted that they are physically incapable of normal work. To dismiss a patient without correcting this condition is to court almost certain failure. Merely ordering the joint to be used is for the most part useless, as few people have the strength of will necessary to make muscles perform their proper functions at the expense of pain. It is the custom of a large number of bone-setters to administer an anæsthetic on two or three subsequent occasions for the purpose of overcoming the muscular resistance. This should never really be necessary if the adhesions have been properly dealt with at the time of the operation, and the most satisfactory treatment after the first two days consists in substituting for the rubbing graduated exercises by means of weights and pulleys. These exercises, though possibly painful, must be performed daily, when it will be found that increase of strength and mobility bring decrease of pain. Exercises should be diligently persevered in till the muscles have regained their former bulk and the joint its full power of movement.

Such are the broad principles upon which bone-setting is based, and, though in certain particulars the procedure I have set out differs from that advised by some surgeons, it embodies the experience gained in a large number of cases, in which success has followed its adoption. Doubtless many joints affected by small adhesions might eventually recover by other means, but the facilities of radiant heat and massage are not easily come by in country places, and are moreover expensive. Where perfect recovery from effects of trauma is unduly delayed time is too often considered as the only solution of the difficulty, and when the patient, tired of his disability, seeks unqualified advice, his cure by the aid of "bone-setting"

must not be regarded as one of "suggestion." Contrary to the popular belief that some mysterious gift is essential for the successful performance of these manipulations, there is nothing to prevent any practitioner doing them with success, provided that care is taken to ascertain the particular lesion that exists. A certain delicacy of touch is doubtlessly requisite to properly appreciate that lesion, whilst the correction of it largely depends on knack, but both can easily be acquired by experience and practice.

THOMAS *v.* BARKER.

MR. JUSTICE DARLING'S SUMMING-UP.

IN the High Court of Justice, King's Bench Division, on Tuesday and Wednesday of last week, before Mr. Justice Darling, this important case was tried.

The following is a transcript from the shorthand notes of Messrs. Marten, Meredith, and Co., 8, New-court, Carey-street, London, W.C., of the summing-up of the learned judge, in the course of whose remarks the gist of the medical evidence becomes apparent as it struck an acute and impartial lay critic. The reasons both for the verdict in favour of the plaintiff and for the modest amount of the damages will be obvious.

Summing-up.

MR. JUSTICE DARLING: Gentlemen, you are aware that this is a case in which the plaintiff seeks damages from the defendant, Mr. Barker, because he says he has established before you, and it is for him to establish it, that Mr. Barker, undertaking to treat him for some affection of the knee, treated him without the amount of skill which he was entitled to expect from Mr. Barker, and that thereby the plaintiff suffered damage in money to the extent of £400, and damage in this, that he had to have the leg amputated, which he would not, he says, otherwise have lost. Now, gentlemen, I tell you that it is for the plaintiff to satisfy you, or else your verdict must be given for the defendant, that the negligence alleged against the defendant is made out. As to what that negligence should be, it is conceded that the defendant is a very skilful manipulator of bones; he is not a man who has passed examinations and got degrees, but has been a long time at this business, and everyone admits and it cannot be too well remembered that he has a great amount of skill and practice in dealing with affections of joints, dislocations of joints, as well as other injuries, which people may suffer from in their joints and limbs. That being so, he is bound to use the best of his skill and knowledge, and it will not do for him to say, and he does not say: "I am only a poor ignorant man, and I did my best." What he says is this: "I am a skilful man, I am a man who has performed thousands of remarkable operations resulting in cure where ordinary doctors have been less successful," and it is because of that reputation that the plaintiff went to him, and therefore the plaintiff is entitled to expect a reasonable amount, a fair and proper amount, of the skill and knowledge of the defendant to be placed at his disposal.

Now, gentlemen, there are some things in this case which we may take absolutely for granted. If I state anything that is not to be taken absolutely for granted I hope the learned counsel against whom I state it will interrupt me at once. The plaintiff had long been suffering from a state of knee which it is now admitted had resulted in a tubercle affection of the knee of some long standing. He hurt his knee in 1901; it had been bad off and on in 1905 and 1906 and 1908; he had been at the Charing Cross Hospital, where the surgeons had suspected tuberculosis; what is called a radiograph had been made of his leg, of the joint, by the skilful photographer and doctor there, and he had come to the conclusion that then in 1908 at the Charing Cross Hospital the plaintiff was suffering from a tuberculous affection of the knee-joint. Now we start with that, and that is before he sees the defendant at all. It may be also taken for granted that nothing that the defendant did, whatever it was, did produce or could have produced the tuberculous affection of the knee-joint; it is admitted that the tuberculous affection was present before. Now we know what has only lately been known, for a very few years even to doctors, but it is now common knowledge that tuberculosis is the work of a little microbe; it is called a little bacillus, a thing that can be identified under the microscope, a thing that can be differentiated from other bacilli, so that a doctor will say, "That is a bacillus which produces tuberculosis; that is a bacillus which produces cholera; that is the bacillus which produces some other definite disease." These things are known. People knew long ago that there was such a thing as tuberculosis, and they called it tuberculosis, and they knew long ago that if you got a tuberculous joint you should keep it quiet, but they did not know why. But now the doctors know why, and the reason is that the bacilli are warring against the tissues in the human body, but among what the doctors call the forces of nature—the bacilli also ought to be recognised as the forces of nature, it seems to me—among the other forces of nature there is something at work, what it is we have not been told, but it is something at work which fights the bacillus, and what it does to him is to cover him over with an envelope. If you keep the place quiet where he is at work and cover him over with an envelope and imprison him, as long as he is there he is like the genius which the Eastern emperor put into the bottle and which the fisherman released unskilfully, not knowing he was there. While there imprisoned he is like the genius, he can do no harm, but take him out, release him, and he becomes active at once. He finds his way to the most vital parts of the body and he will kill the patient in whom he is operating, unless he is removed by some such process as the amputation of the affected limb. Now that happened here. Somehow the bacillus was at work in Mr. Thomas, and had been for a long time. Some of the doctors, the doctors on the one side, said, "We believe he was quiescent; we believe he had become quiescent; we believe he was imprisoned, encapsulated, use whatever term you like, and it would not have done him harm if it had not been interfered with." The doctors on behalf of the defendant said this afternoon, "We do not agree at all." They said, "We had not the same advantage; we had not the same opportunity as the plaintiff's doctors, because they saw the plaintiff while he had his leg upon him, they saw the sinus, they saw the abscess, they took off the leg, they examined while it was fresh, bone, cartilage, tissues, and everything," and they were called yesterday and gave their evidence. The doctors called by the defendant to-day say, "We have not had that advantage, we have examined the thing since it has been preserved in formalin, and we come to the conclusion that the microbes had not been encapsulated; that this was a thing of long standing; that it was a progressive thing; it did become more active than it had been; it did result in such a thing that by the 15th April it was necessary to amputate the leg or the man would have died." They all agree to that, but the defendant's doctors say that was in no way due to anything the defendant did, it would have happened anyhow. Then it becomes necessary to inquire what did the defendant do? Here, again, it is conceded on all hands, unless I am much mistaken, that it would have been grossly improper, with a leg being in the state in which it was in November, 1909, and December, 1909, to do any such thing to it as the plaintiff suggests was done. It would have been grossly improper, the defendant himself says, to have used any violence to it, to have attempted to break down adhesions by giving it a violent wrench.

Now, gentlemen, it is also admitted that in certain circumstances it is a perfectly proper thing to take hold of a joint and to use violence to it to break down adhesions. It is stiff because something has grown on to it and holds it tight, and it is admitted that there is a legitimate operation of breaking down adhesions, and then the joint will work. But it is admitted that must not be done if the joint is a joint affected by tuberculosis, and it must not be done for the reason that if you do that kind of operation upon a joint affected by tuberculosis you set free the bacilli and they do the work which I have just described to you. Now the contest comes between the plaintiff and the defendant. The plaintiff says the defendant did undertake to perform an operation upon him, the operation of breaking down the adhesions; he told me that he would have me dance, which he could not do while these adhesions were there. The defendant says, "I never undertook to do anything of the kind; I told you you had tuberculous disease of the joint." The plaintiff says "You did say something about tubercle, we talked about it, because I said the doctors at the Charing Cross Hospital suspected something of the kind." The defendant says, "I told him that I must examine him, and I should recommend radiant-heat baths, and I should want to examine the knee." The plaintiff said, "You told me you must give me an anæsthetic because the operation you were going to perform would cause me great pain." The defendant says, "I never said anything of the sort. I wanted to perform no operation. I wanted to make an examination," and therefore the defendant says—I will read it if you wish, but I think I can summarise it—"I recognised from the first this was a very bad knee. I suspected there might be cancer it was so bad, sarcoma it is called. I never expected even to be able to give relief, but I said I will try these radiant-heat baths and make the examination, and I shall want, for the examination, to give you an anæsthetic." Gentlemen, he did prescribe the heat baths, and the plaintiff took them, and he went back, and on two occasions, the 27th November and the 16th December, the defendant got Dr. Axham, his anæsthetist, to give gas to the plaintiff. While under gas he did something to the plaintiff, and he did it with his hands. The defendant says, "What I did was I handled him very gently, I simply moved my hands during a few seconds to make an examination." Why did he do it? He said, "I did it to confirm myself in my opinion. I had made a hurried examination before, and this was to satisfy myself whether my first opinion about it was right." If the very first examination, the one on the 27th November, did satisfy him he was quite right that it was tuberculosis, that there was nothing to be done, the case was hopeless—he said himself there was nothing for it but amputation, and that he told the plaintiff so, and that he must see a surgeon—If that is so, how is the second examination explained? What is said is, if you are going to treat a leg in the way of breaking down adhesions, if you do not break them all down the first time you will have to perform a subsequent operation. That is common enough, but it is asked, If he had made an examination under gas and satisfied himself by that examination of the 27th November that he was right in his diagnosis, why put the plaintiff to 5 guineas more expense to make another examination? The answer to that is that it was done to see what effect the radiant-heat baths had produced. Now are you satisfied of that? Dr. Axham has been called, you have heard his evidence. I will not attempt in any way—it is so lately given and it would be impossible to summarise it in a few words—to convey any idea of it. You have heard it. Does it satisfy you no operation was performed on that day? Does it satisfy you there was nothing else? You heard his examination and his cross-examination. There is the fact of what is put down in the books. You see "Op. gas" and those two letters and you have heard the defendant's explanation of what that means. They are the very words he puts down when he does do an operation, when he does operate by breaking down adhesions. There is nothing to distinguish them, but he says: "It merely means I wanted the anæsthetist; it does not mean there was an operation, it merely means gas." Gentlemen, I suppose you will ask yourselves. If it only means gas, why not put down only "Gas"; why put "Op. gas," which is put when there is an operation under gas, if you do not mean any operation but only mean gas? But there is his explanation. It seems certain that gas is quite sufficient if you are only going to do such an operation as can be done by a very skilful man, a very quick man. Gas is quite sufficient if a skilful practised man is going to break down adhesions, to take hold of a limb, twist it, and break down the adhesions. It might take you or me half a day, but a man who knows exactly what to do can do it; and the defendant habitually does do it with gas. When he wants to perform an operation he puts "Op. gas," and then he performs an operation not with chloroform or ether necessarily, but with nitrous oxide gas. If that is so, you must ask yourselves are you satisfied what was done on these days was nothing but examination. If it was nothing but examination the plaintiff's case is gone, because nobody pretends that merely to examine that knee without using the sort of violence that would be used to break down

adhesions would have produced the kind of thing the plaintiff said was produced by what was done on those two days. Here, again, mind, it is for the plaintiff to satisfy you that what was done was violent twisting or breaking down of those adhesions. He must satisfy you. If you cannot make up your mind about it you must not find for the plaintiff upon that, but you must take this evidence into your consideration and say what are you satisfied was done. The defendant's case is this, and he and Dr. Axham are the only two people who were awake in the room at the time what he did was done; the plaintiff, of course, was asleep owing to the gas. The defendant undoubtedly knows what was done, the plaintiff does not accurately; I mean he cannot tell you, he was asleep; the defendant does know what was done. Dr. Axham may or may not know what was done, according as you think you can trust his evidence as being genuine or with insufficient knowledge. But there are three witnesses whose evidence you must bear in mind in considering really what was done on the 27th November and the 16th December. It is admitted that the plaintiff took with him on the first visit his sister Alice, and she said she saw the defendant in a waiting-room. "I asked him if he thought he could do my brother any good; he said Yes. Defendant said my brother did not want to take an anæsthetic, but what he was going to do could not be done without one as it would cause intense pain." Gentlemen, if you believe that, that does not refer to an examination to satisfy himself as to whether his first diagnosis was right, because it is not pretended that an examination would cause any pain at all. Examination would be the gentle touching alluded to in the letter as a "gentle movement of the joint," to see if it was free or tuberculous. Do you believe that young woman when she says that was said to her? "The defendant said he was quite sure he could do my brother a lot of good, if he did not quite cure the limb that he could walk without a stick or anything." Now the defendant's evidence is totally different, because he says, "I recognised from the first I could not do him any good. I never pretended I could do him any good; it was a shocking case, a very bad case of tuberculous joint, as I could see the very first time when I made my first examination on the 27th November. I was absolutely confirmed by that, although he had those radiant heat baths meantime." That was said on the 2nd November, not at the time when any operation took place. But on the 27th November, when the first operation or examination was performed, the plaintiff undoubtedly took with him Mr. Joy, his cousin. We know he undoubtedly did, because the defendant himself says, "I saw Mr. Joy; I saw him in the waiting-room. I saw him as I came out," and Mr. Joy says this: "After the operation I saw the plaintiff; he was dazed and exhausted; they had all come into the ante-room; the defendant looked very heated, that is Barker; drops of perspiration were on his brow. I said, 'You seem very warm, Mr. Barker.' The defendant said, 'He has given me a hard job,' or a 'tough job.' I asked if the plaintiff was all right. Defendant said, 'Oh yes, we will soon see him all right.'" He says, "the plaintiff was in the defendant's room, where I was not, for 20 minutes or half an hour." Now, gentlemen, you must ask yourselves is that evidence true? If it is true it points to something being done very different from a little examination, and no one disputes that if a man is going, within a short space of time, something under a minute, to take a joint forcibly and break down adhesions, that is very hard work, and the defendant himself told us yesterday he worked very hard, that the work was hard and exhausting, and you could see for yourselves if you are applying your force with knowledge upon a very small space and within a very short time, it is bound to fatigue and to fatigue you suddenly and greatly. You must ask yourselves is that evidence true? If it is not true, Sir Edward Clarke said, and I see no alternative to it, Mr. Joy has simply invented it, and Sir Edward Clarke said it was perjury and very deliberate perjury. There he will have invented the fact of the appearance of the defendant, and invented a conversation with the defendant, and I do not see how you can help applying the same observations to the evidence I have just read of Miss Alice Thomas. Mind, you must not be afraid; juries must do their duty and must face most difficult circumstances bravely. It may be that is perjury, it is for you to judge: you saw the young woman; you saw Mr. Joy; you heard him give his evidence and you heard what cross-examination there was. Do you or do you not believe him?

Now Miss Elizabeth Thomas went with her brother on the 16th December, and she says, "I went with my brother; I saw the defendant before the anæsthetic was given, and again afterwards. The defendant came downstairs"—it was suggested at one time that could not be, that the consulting room was on the ground floor, but he has two, and sometimes uses one and sometimes the other—"and took me up to where the plaintiff was; the defendant looked very hot; the defendant left me alone with my brother and then came in again. I asked the defendant what he thought of my brother's leg; he said he thought it might be sarcoma, and said: 'It is a very bad leg.' I asked if he thought he could do my brother any good, and he said, yes, he thought he could. He said he felt quite sure we should have him walking about again." Then she was cross-examined and said, "I know now what sarcoma is"—the defendant says he believed he explained it to her and told her it meant cancer—"I inquired a few days later of one of our own doctors, it may have been Dr. Bunn or Dr. Carruthers, and I think he said it was something like cancer of the bone; this was in December, and I told him that is what the defendant had said the plaintiff was suffering from. I do not know that the defendant led me to believe that he had used great force; he looked very hot." There is her account.

Now, gentlemen, really it seems to me the crux of this case is what was done on those two days. Do you feel sure of what was done? Can you make up your minds upon the evidence of the plaintiff and of the defendant, and of Dr. Axham and of those three witnesses, what was done? Some of them are not telling you the truth, that is certain. If the defendant is telling you the truth the plaintiff is not, and I should say if he is telling the truth it is almost impossible to suppose that Mr. Joy is telling the truth, and very difficult to suppose these two young women are. What he says is absolutely irreconcileable with what Mr. Joy says. Now, gentlemen, you must make up your minds, I think, whether on those two days, the 27th November and the 16th December, an operation was performed or whether only an examination took place. As to these the defendant says it was only an examination; it was an examination, if an examination, under gas. He does use gas when he is going to perform an operation. Does anyone use gas except for operations? Does anyone use it for making an examination alone? The doctors for the plaintiff say no, but now here is a doctor called for the defendant, Dr. Garrard; he is a very eminent doctor, as Sir Edward Carson has pointed out. Listen to what he says about this: "I never have examined a knee of this kind with an anæsthetic; it is sometimes required to overcome reflex contraction; gas could not do the patient any harm; I should not have given it myself; I should not want to examine the joint; if so, I should prefer chloroform; gas is the least dangerous." That he said in examination-in-chief, but if he wanted to examine a joint he would not give an anæsthetic; he would not need to; he could examine the joint without. What bearing has that on this case? What was there here which made it necessary to examine that joint with an anæsthetic? What was there that the defendant had not found out about the joint in the interviews which preceded the 27th November and in what he knew had happened from the treatment of the radiant heat baths? Dr. Garrard was then cross-examined by Sir Edward Clarke and said this: "I have much experience of tuberculous joints. I have had to examine many tuberculous joints. A careful examination would take some considerable time." The reason for that is this: what was done by the defendant only took a few seconds, something inside a minute. It is conceivable an operation may be performed within that time, a sudden violent twist, but if you are going to examine in order to confirm earlier examinations is it enough time? Listen to what Dr. Garrard says: "A careful examination would take some considerable time. I have never used an anæsthetic for it, and have always made a satisfactory examination. I should prefer chloroform if I had to give an anæsthetic to examine a joint, because it gives a longer time and relaxation of the joint. Gas gives a very short relaxation; then the muscles become rigid, and so the purpose of the examination would be defeated." That is Dr. Garrard's evidence. Now ask yourselves, in the light of the scientific knowledge which these people place at your disposal——

A JUROR: May I make a remark, my lord?

Mr. Justice DARLING: Certainly.

The JUROR: The evidence seems so conflicting on the part of the doctors as to the immediate result of the breaking down of the adhesions. Some doctors say he could not walk away at all.

Mr. Justice DARLING: I was coming to that.

The JUROR: Others say it would not show for some weeks.

Mr. Justice DARLING: I know, and I will come to that. There you have the medical knowledge which is put at your disposal as to the object and as to the utility of giving gas to a person for an examination. That it may be given for an operation is not disputed, because it has been done. As you yourself have said, it has been said by the doctors, some on one side and some on the other, that the plaintiff would have been in such pain that he could not have walked away. He says himself, I will read it to you if you like, that directly this was done he did feel easier. If nothing was done but examine it was difficult to imagine that could have made him feel easier, but he says he did feel easier at the time; that he walked away with a stick, he came with a stick; that after a time the knee-joint got stiff and swelled. He went and had more of the baths; then the last operation was performed, after a time the knee-joint got stiffer, more swollen. Before he gave up attending the defendant at all there had appeared the inflammation on the outside, there had appeared the sore, and then he put himself in the hands of these other doctors. Now, gentlemen, what do the doctors say? On the one side they said if anything beyond an examination had been made, anything in the way of breaking down adhesions, he could not have walked away. Other doctors, Mr. Waterhouse and others, say he could. At the time there is nothing inconsistent. They heard all the evidence he gave, and they said there was nothing inconsistent in his having walked away from the place directly the operation had been performed. I cannot tell you how to reconcile this. You must try to find out some means for yourselves. It would be improper for me to say you should rely on this doctor more than on that. You have seen them in the box, you have heard them give their evidence, you have heard them cross-examined. You find that the doctors on the part of the plaintiff, Mr. Waterhouse, and the rest, see nothing inconsistent with an operation being performed on those two days and the plaintiff walking away and walking about some time afterwards, and finding the damage becoming noticeable some time after whatever was done was done. You have heard the cross-examination, a long cross-examination, as to whether it would not necessarily have brought about great pain and suppuration even within a very short time; whether the microbes would not have got to work at once and practically destroyed his life within a few days. The doctors on the other side, the same doctors who have given this theory you have lately listened to from the observing of that joint in the bottle, have given their opinion, and said he could not have walked away after an operation had been performed.

A JUROR: My lord, could we not know how many said he could and how many said he could not, because it seems to me to hang on that?

Mr. Justice DARLING: Dr. Bunn thinks he could, Dr. Carruthers thinks he could, Mr. Waterhouse thinks he could, Mr. Ballance thinks he could. There was one other doctor.

Sir EDWARD CLARKE: Dr. Ironside Bruce.

Mr. Justice DARLING: Not one of them saw anything inconsistent in his walking away as he said he did, with a stick and feeling stiffness and swelling after a time, after a day or two. Not one of them saw any inconsistency in his doing that, anything inconsistent with the fact that an operation—a wrenching—had been performed on him that day. He walked with a limp when he came—he came because he always walked with a limp, and he went away with a limp. The doctors you have heard this morning—Mr. Barker you are entitled to take because, although not a qualified doctor, he knows a good deal about this kind of thing—Mr. Barker, Mr. Garrard, Mr. Phillips——

Mr. HOLMAN GREGORY: Dr. Axham.

Mr. Justice DARLING: Yes, Dr. Axham.

Sir EDWARD CARSON: And Dr. Whitehead.

Sir EDWARD CLARKE: He did not say anything about it.

Mr. Justice DARLING: Dr. Whitehead did not say very much about it.

Sir EDWARD CARSON: He said that he agreed with the other doctors.

Mr. Justice DARLING: Yes, he did, he agrees with Dr. Garrard and Mr. Phillips. He also said to Sir Edward Clarke that he agreed with Dr. Garrard's evidence, and you have heard the points in that evidence; Sir Edward Clarke called Dr. Whitehead to his aid, the points in which he relied himself upon his evidence.

Gentlemen, that is the case, but beyond I ought to tell you it is never a good way in estimating the value of evidence to say there are so many

on one side and so many on the other, because if time enough is given to it you could in most cases find always enough witnesses to overbalance in mere numbers the witnesses on the other side. Gentlemen, you must apply your own common-sense to the evidence, apply your own knowledge of what would be likely to happen, and weigh the evidence given by the doctors and by every other witness with that knowledge in your minds; but also do this: when you have theory on one side and theory on the other, and you want to find out whether a particular thing did happen or did not happen, you must have something to go by beyond those who say if it did happen the consequences would be so-and-so, and those who say if it did happen the consequences would be the reverse. If you feel you have direct evidence upon which you can rely as to what was done at the time and said at the time, and you are entitled to satisfy yourselves by that, you are not bound to attempt to reconcile one theory with the other. If the evidence satisfies you a thing was done or was not done, you should say it was done or it was not done, notwithstanding that so-and-so says the consequences if it was done would be this, and somebody else says the consequences if it was done would be that. If you are satisfied by evidence a thing was done, what can it matter that people say if it had been done the consequences would have been so-and-so? Let me put a simple case. Suppose you go away from this building and see a man knocked down by a taxicab, as you very likely will, and you see him get up and run away, and suppose when you come back here a year or so hence the case is being tried and people were to come before you and say if a man had been knocked over by a taxicab he could not have got up and run away; he might have gone a yard, and another said he could not have moved at all, he would be lying there still; and suppose you find another witness saying if a man were knocked down by a taxicab not only could he get up and run away but he would run all the better, all the faster, because he was so frightened, you would say to yourselves, "I cannot reconcile these theories; these are theories, I cannot reconcile them." I would say to you, if you were trying that case, "For goodness sake, there is one thing do not do: do not count how many witnesses have been called for the plaintiff and how many for the defendant; satisfy yourselves whether the thing did happen or not." If you saw it happen you would have a simple way of saying, "I know it happened because I saw it," but you might have a way not quite as simple but yet sufficient; you might have this: a man might come and say, "I care nothing for theories, I saw that happen; I do not want to go into what the man could do; I saw it happen," and if that was a man whose evidence you felt you could trust you would say that did happen, or, if a man said, "I was there and it did not happen," you would say "I am satisfied it did not happen," and you would not want to ask yourselves what would be the consequences if this man is right, or the other. I am not telling you that this scientific evidence should not be taken into consideration; it should. It should be taken into consideration, and due and proper weight given to it, but the number of witnesses should not be counted as a means of finding out a preponderance of opinion. The weight of evidence should be watched and carefully considered, and to arrive at whether it is satisfactory evidence or not it should be compared with what you can satisfy yourselves to be the indisputable facts of the case, and some facts there may be you are satisfied are indisputable. I do not think there is anything more I need say to you. If there is any point learned counsel desire me to call attention to I will call attention to it, but I do not think there is. Gentlemen, you will find for the plaintiff, therefore, if he has satisfied you that the defendant treated him negligently and that damage was thereby occasioned. If he did treat him negligently some damage was certainly occasioned, because he paid the defendant, I forget how much.

Sir EDWARD CLARKE: 17 guineas, my lord.

Mr. Justice DARLING: And if he paid 17 guineas for doing that which was worthless some damage was occasioned. Of course, if you find for the plaintiff it does not follow all the damage which the plaintiff says occurred to him occurred to him because of what the defendant did, even if what the defendant did was negligent, because there still remains, as Sir Edward Carson put, this possibility, that even if the defendant was negligent what he did may have had the smallest possible effect upon the sufferings or the losses of the plaintiff outside the loss of the 17 guineas. It may be that those microbes would have become active if the plaintiff had never seen the defendant. You may say to yourselves you are satisfied they would, or you are satisfied that they would not. You may say to yourselves you are satisfied if you find the defendant did do that which is negligent to the plaintiff, that but for that the plaintiff would not have had to pay this £400 and lost his leg, but it is only if you are satisfied of the negligence and of the resulting damage from it that you may give a verdict for the plaintiff with a sum commensurate with what you find to be the result of the damage. Gentlemen, you will take the case into your consideration and say whether you find the plaintiff's case is proved. If you do, you will say "Verdict for the plaintiff." If it is not proved you will say "Verdict for the defendant." If it is proved, then you will say "Verdict for the plaintiff" with such damages as you are satisfied resulted from what the defendant did to the plaintiff. If you would like to retire do so, and take any documents you like with you.

The FOREMAN of the JURY: My lord, cannot we have special terms?

Mr. Justice DARLING: I have no power in the matter. I cannot order anything, but while you are out I will consider and see if anything can be done.

The Jury retired at 5.5 P.M., and returned into Court at 5.57 P.M.

The ASSOCIATE: Gentlemen, are you all agreed?

The FOREMAN of the JURY: Yes.

The ASSOCIATE: Do you find for the plaintiff or for the defendant?

The FOREMAN: We find for the plaintiff.

The ASSOCIATE: What damages?

The FOREMAN: £21.

The ASSOCIATE: £21.

The FOREMAN: 20 guineas; that is £21.

Sir EDWARD CLARKE: I ask your lordship for judgment for the plaintiff and a certificate for a special jury.

Mr. Justice DARLING: Yes. (*To the jury*): This is not a case in which I have any power to make an exceptional order. You have only served just your ordinary time. You will be discharged from serving again this week. You will get away two days earlier than you would have done.

Sir EDWARD CLARKE: I am told I ought to ask your lordship for an order for costs on the High Court scale.

Mr. Justice DARLING: Certainly. I have certified for a special jury. It is obviously a case for a special jury.

Sir EDWARD CLARKE: If your lordship pleases.

THE METROPOLITAN WATER-SUPPLY.

Report on Water Examinations for October, 1910.

Dr. A. C. Houston, the Director of Water Examinations of the Metropolitan Water Board, has recently issued his report on the results of the chemical and bacteriological examinations of the London waters for the month ending Oct. 31st, 1910. This report shows that 1407 samples of water have been examined chemically or bacteriologically. Full details of the analyses are given in tables. The results of the analyses show that, speaking from chemical standards, the filtered waters have, generally speaking, maintained approximately their standard of purity, there being a slight deterioration only as regards the Lambeth and Southwark and Vauxhall supplies, and also as regards the Kempton Park and West Middlesex and Grand Junction supplies. The other filtered waters showed chemically a slight improvement. The bacteriological results were satisfactory and showed, on the whole, a slight improvement.

The value of the systematic and careful routine examinations which Dr. Houston is carrying out daily on the London waters cannot be too highly estimated. They are the best safeguard possible against any outbreak of water-borne disease in London, and in addition the results of these daily routine examinations must be of the greatest assistance to the engineers in charge of the filtration of the London waters at the various stations, since they form the only reliable check on the efficiency of the filtration processes.

Results of the Storage of Water.

Dr. Houston has recently published his sixth report on research work on "The Comparative Vitality of 'Uncultivated' and 'Cultivated' Typhoid Bacilli in Artificially Infected Samples of Raw River Water, with Special Reference to the question of Storage." This report is an exceedingly interesting and valuable contribution to our knowledge of the exact danger resulting from the possible infection of raw water with typhoid bacilli, and the results of Dr. Houston's investigations clearly indicate the manner in which the dangers from infection are best safeguarded. Dr. Houston deals in the first part of his report with the two varieties of typhoid bacilli which may be artificially experimented with—viz., "uncultivated" and "cultivated" bacilli. In the previous experiments made with typhoid bacilli "cultivated" bacilli were used which had been grown on agar cultures, and it might reasonably be argued that conclusions based on experiments with "cultivated" bacilli could not be applied to cases where the bacilli were uncultivated—i.e., taken fresh from a living patient. Professor E. J. McWeeney of Dublin has had under his care a patient whose urine was swarming with living typhoid bacilli, and Dr. Houston was, by the courtesy of Professor McWeeney, able to obtain from this patient living "uncultivated" typhoid bacilli for the carrying out of a valuable series of experiments detailed in his research report. The history of the case is given in detail, and it is of interest to note that the patient contracted typhoid fever as long ago as 1903 and was apparently completely cured after three months. Since that time the urine of the patient has contained swarms of typhoid bacilli, and apparently the patient has been the cause of infection of several cases of typhoid fever. On August 9th, 1910, Dr. Houston received 500 c.c. of the patient's urine and obtained from this by centrifugalisation great numbers of living typhoid bacilli. These were added to raw Thames river water, so that each cubic centimetre of water contained 770,000 organisms. The water was placed in a partially

filled stoppered bottle in a dark place. After one week only four living typhoid bacilli per cubic centimetre were present, and after 14 days it was found that no living typhoid bacilli remained in the water. Dr. Houston confirmed his scientific experiments by the practical one of drinking himself on the twenty-fourth day half a pint of the infected water with no harmful result. He states as his belief that, while the urine-polluted river water was grossly infective at the starting of the experiment, after 24 days it had become absolutely innocuous owing to the death of all the typhoid bacilli.

Dr. Houston made a second experiment of similar nature and found that at the end of one week no living typhoid bacilli remained in the water which had been grossly infected a week previously. On the twenty-third day and subsequently each day for four days Dr. Houston drank half a pint of the infected water with no harmful result to himself. He made comparable experiments with raw Thames water to which "cultivated" typhoid bacilli had been added. It was found that the cultivated organisms were more resistant to the effects of storage, and some living bacilli were found after five weeks' storage. The fact that the uncultivated typhoid bacilli die much more speedily in raw river water than their cultivated brethren is of far-reaching practical importance, and very reassuring, since the danger of drinking polluted water arises only from the possible presence of the "uncultivated" bacilli.

The conclusions of Dr. Houston's experiments go to further support what he has continually insisted upon in so many of his previous reports—viz., that adequate storage of raw water antecedent to filtration is the best possible safeguard against water-borne epidemic diseases, and that an adequately stored water is to be regarded as a "safe" water. Dr. Houston hopes that the day is not far distant when adequate storage of the whole of the London waters will be secured. At present this does not appear to be the case, though great improvements have recently been made in this respect.

In Addendum C, Dr. Houston gives the results of the examination of the pre-filtration water—i.e., representative samples of practically all the London water antecedent to filtration. The experiments on which the results are based were made on examinations of the water for the bacillus coli. Dr. Houston, from his investigations, has made some very valuable suggestions as regards weak points in the system of supply which might, without much difficulty, be remedied. No doubt these suggestions will be adopted at as early a date as possible.

In Addendum D an extremely interesting account is given of the subject of typhoid carriers. Unfortunately there is no legal provision enabling the carrier to be debarred from undertaking what occupation he pleases, notwithstanding the fact that a carrier who is engaged in the milk trade or in the preparation or handling of food may be a public danger.

The whole of this sixth research report is teeming with interest, and Dr. Houston is to be congratulated on a valuable and courageous addition to his previous excellent researches.

THE HEALTH OF THE ARMY IN 1909.

II.[1]

Sanitation.

MUCH attention is now being paid to the instruction of regimental officers and men in army sanitation. Over 400 officers were instructed and examined before promotion to captain, nearly all of whom passed the test successfully. The army school of sanitation at Aldershot is vigorously at work, regimental and medical officers and men, and members of the Officers Training Corps and the Territorial Force receiving instruction by lectures and demonstrations. At this institution, also, valuable experimental investigations have been carried on during the year in the direction of improving the filter water-cart and the exchange heater apparatuses in use for purifying water. The Griffith machine continues to be favourably spoken of. A new feature has been introduced by the utilisation of the steam generated in the sterilising process (that was formerly allowed to go to waste), as a means of filling the supply tanks, thus saving the labour of pumping.

The sanitary condition of *Camps* is reported generally to have been good; greater attention is being paid by all ranks to sanitary affairs; it is stated that the importance of sanitation is, perhaps, not sufficiently recognised by members of the Territorial Force, a circumstance, no doubt, due to the shortness of their period of training which hardly leaves sufficient time for its study. Large bodies of men, both Regulars and Territorials, have been encamped during the training season on very limited areas without any serious outbreak of disease; on Salisbury Plain over 80,000 troops were under canvas during the summer. At Caerwys, in Flintshire, the camp between August 1st and 15th, comprising roughly 14,000 men, "perhaps represents the largest body of Territorial troops ever brought together in a single encampment for so long a period. The camp was certainly unique in the fact that the water-supply had been condemned, and all water used for drinking purposes was sterilised by means of heat exchange apparatus." This speaks very well for the sanitary supervision of the camp; we hope, however, that it will not become a routine practice to mass many thousands together—chiefly untrained troops—on sites where the water-supply is unfit for drinking.

A change has been made in the source of lymph-supply for *Vaccination*. Formerly it was prepared at the Army Vaccine Institute at Aldershot; since September, 1909, it has been supplied from the Government Lymph Establishment at Hendon. Of the recruits enlisted 949 per 1000 had vaccination marks, and 0·4 per 1000 marks of small-pox. The proportion per 1000 bearing no marks either of small-pox or vaccination was 50·6. This shows a higher proportion of unprotected persons than has hitherto been noted. In the five years, 1891–95, the average was 27·7; in 1896–1900, it was 34; in 1901–05 it reached 39·3, in one year only (1903) having been above 40; in the last four years, 1906–09, the ratios have been 35·9, 42·8, 49·9, and 50·6. The matter is of little consequence for the army, because every recruit that needs it is either vaccinated or re-vaccinated. But if these figures are to be taken as generally applicable to the young adult male population, they indicate that a large amount of inflammable material is accumulating throughout the country.

Infectious Diseases.

It is stated on page 36 that "cases of infectious disease were much more numerous among the troops than in the previous year, due chiefly to excessive prevalence of scarlet fever and measles at certain large stations." This is not borne out by the figures in the tables, which show that for the acute specific fevers in Group A there were 2976 admissions in 1909, compared with 4460 in 1908. There were rather more cases of diphtheria and scarlet fever, but fewer cases of enteric fever and measles, and a large reduction in the admissions for influenza, 2032 compared with 3449 in 1908. None of the outbreaks appear to have been serious. The only real epidemic of enteric fever occurred at Kilworth Camp, in the Cork district, where 24 cases were admitted; the milk-supply came under suspicion and infection was traced to the presence of a female carrier on the farm whence the milk was derived; she had had an attack of enteric fever in 1903, and her subsequent movements had been followed for some time by the appearance of febrile attacks among those with whom she had come in contact, either directly or through the medium of the milk-supply. The outbreak was chiefly connected with the officer's messes, 14 officers and 9 servants being attacked. On examination the girl's blood was found to react with B. typhosus up to a dilution of 1 in 100, and the urine contained typical enteric bacilli. The milk used at the messes was said to have been boiled, but obviously this was not invariably the case.

Barracks.

Extensive improvements are being carried out in the housing of troops; some barracks, as at Dorchester and Newbridge, have been vacated, and others will be vacated shortly. The most important new works in hand are the Redford Barracks, near Edinburgh; new married quarters are being constructed at several stations.

[1] No. I. was published in THE LANCET of Feb. 25th, 1911, p. 534.

The Mediterranean Area.

The stations in the Mediterranean Command are Gibraltar, Malta, Crete, Cyprus, and Egypt. All these stations show a reduction in the admission-rate, except Gibraltar; all except Crete have a lower death-rate; and all without exception have a lower ratio constantly sick than in the previous five-year period. Gibraltar and Malta have the lowest admission rates (370·3 and 373·6 respectively), Egypt has the highest (672·9); the death-rates were 2·46 at Gibraltar, 2·97 in Malta, and 4·21 in Egypt. The average strength of the command was 15,948.

At *Gibraltar* no serious illness occurred, except an outbreak of 14 cases of Malta fever. There had been no incidence of the disease in the garrison since two isolated cases in 1907; the civil returns also showed not a single case in 1908, but in May, 1909, there were two cases among the civil inhabitants. Some admissions for fever occurred in the garrison in spring and early summer which were thought to be influenza; and in July the discovery of Phlebotomus pappatasii[2] on the Rock caused attention to be given to phlebotomus fever due to the sand-fly; some of these early cases may have been Malta fever, but the sanitary officer, Major C. E. P. Fowler, thinks this very doubtful. In September 11 cases were admitted from the military population, of a severe type, the infection being a mixed one with both M. melitensis and B. typhosus. The infection was, there is little doubt, derived from a herd of goats, some of which had been landed from Malta in April; these animals had a clean bill of health from Malta, but Major Fowler obtained a positive reaction for M. melitensis in two on arrival, and subsequently in four others; 13 out of the 14 Malta fever patients had been consuming milk from the dairy to which these goats belonged. "The fact, or coincidence, is mentioned for what it is worth. Proof would be impossible of attainment." To most people the sequence of occurrences would afford sufficient grounds for forming an opinion; but the curious point is that amongst the Gibraltar goats, numbering 300 or 400 (whose blood reaction is noted twice a year), a number of positive results has always been obtained, varying from 10 to 15 per cent., showing that this proportion of animals was possibly infected with M. melitensis, and yet no case occurred among the consumers of the milk until the arrival of the imported goats from Malta. Six cases of enteric fever were reported, all sporadic.

Malta.—The improvement in health of the troops at this station still continues; as compared with the previous quinquennial average, 1904 to 1908, the ratios for admission to hospital and men constantly sick have fallen from 540·8 and 35·54 to 373·6 and 24·47; the death-rate is 2·97 compared with 4·97. For the ten-year period, 1896–1905, the admissions averaged 748·2 per 1000, the constantly sick 47·78, and the deaths 7·44. Since the beginning of 1907 there have been practically no admissions for Malta fever; the reductions have been in influenza, some forms of venereal disease, and generally all round. The number of invalids sent home was higher than in 1908, owing to the large number of cases of tubercle of lung (17) and of heart disease (13). Enteric fever, unfortunately, shows an increase this year, 14 cases having been admitted. The outbreak coincided with a marked increase among the civil population. It is stated that none of the cases were attributable to insanitary conditions in barracks; five of them, however, came from Fort Manoel, where dry earth latrines are in use and flies abundant. They were believed to be connected with the arrival of a carrier case from India. The substitution of saponified cresol for dry earth in latrines might surely be carried out in Malta now that its efficacy has been demonstrated in India. Pyrexia of uncertain origin caused 285 admissions, a ratio of 44·6 per 1000, compared with 102 9 for the quinquennium. The cases were investigated by Lieutenant-Colonel C. Birt, who believes the disease to be identical with the pappataci fever of Dalmatia, infection being conveyed by means of Phlebotomus pappatasii. The fever is of two to five days' duration and not of a serious character. It was distributed all over the island, except at Imtarfa, near Citta Vecchia, which stands at 630 feet above the sea. There is a distinct relation between prevalence of the disease and the distribution of the sand-fly, and transmission by this means has been actually proved; the fly remains virulent for seven to ten days; no pathogenic organism has yet been identified. One case of Malta fever occurred in the garrison; the patient had drunk unboiled goat's milk in a restaurant in Valetta. Improvement has been effected in the sewerage arrangements, especially in the way of increased flushing; a large tank for storage of sea water is in course of construction on Kemmana Hill, which when finished will supply flushing water in ample quantity for the whole island. When Malta fever is abolished, or, rather, now that it has been abolished, and when the closets and sewers of the island are properly flushed, Malta will regain much of its old popularity as a delightful winter resort.

The small garrisons in *Crete* and *Cyprus* had good health during 1909, the constantly sick ratio being only 25·52 per 1000 in Crete and 16·54 in Cyprus. Two types of pyrexia prevailed in Crete, one resembling the pappataci fever, and lasting from one to three days; the other, of longer duration, from seven to ten days, and with more marked symptoms. Malaria diminished in Crete owing to vigorous anti-mosquito operations.

Egypt.—With an average strength of 5457, the admissions to hospital were 672·9, and the constantly sick 40·61 per 1000; the deaths were 4·21 per 1000. These ratios are all lower than those for the preceding quinquennium. Dysentery, pyrexia, pneumonia, and tonsillitis caused more admissions than the average; enteric fever and malaria were less prevalent, also venereal diseases. Nine cases of small-pox occurred in Cairo, one being hæmorrhagic and confluent, terminating fatally; the condition of this man as regards vaccination marks and history is not stated. There were 21 cases of enteric fever, mostly from the Abbassiyeh barracks, Cairo; three of these cases had been inoculated. It has to be admitted that it is very difficult to trace enteric fever to any single, or definite, source in Cairo; there are so many likely causes. It is noted that there was a plague of common house-flies in the spring, and again from September to the end of the year; but there was practically no enteric fever when the fly plague was worst. The water-supply is good at its origin, from the wells at Zeitoun and Rod-el-Farag, but the mains are laid in filth-sodden ground, and if they are not perfectly in order infection might easily gain access. Pasteur filters are in use in barracks. The milk-supply for the troops is entirely tinned; for officers' messes it is said to be invariably boiled. Possibly the disease is contracted outside barracks. Pyrexia of uncertain origin caused 431 admissions (79 per 1000), a considerable increase on the quinquennial ratio of 59·5 per 1000. A careful description is given of the cases, which are considered to belong to four or five different diseases. The phlebotomus is the common sand-fly of Cairo, and it is here that the fever appears to be endemic. It is noted that the rise and fall of the disease coincide with the rise and fall of the Nile and of the summer temperature. Possibly variable types of influenza and dengue are included under the same heading. The principal increase in 1909 occurred in the citadel at Cairo, and it is suggested that aggregation of cases in the hospital may have had something to do with this. The only point that seems to stand out quite clearly is that the disease exists definitely in Cairo and hardly at all at Alexandria. No deaths resulted, and the average number constantly sick was only 1·77 per 1000. It would seem, however, that here is an opportunity for a careful and detailed investigation by a skilled officer specially deputed for the purpose. A good deal of sanitary work has been carried out during the year; new infantry barracks have been commenced at Cairo; water-tanks have been protected against mosquitoes; Berkefeld filters have been installed throughout barracks, and the water is no longer boiled; the pressure of water is not sufficient to enable Chamberland filters to be used. At Alexandria the public water-supply, which is derived from a very foul source, the Mahmoudiyeh Canal, is treated on the Jewell system of filtration, and in barracks all drinking water is in addition passed through Chamberland or Berkefeld filters. Latrines and urinals are treated most successfully with cresol solution; there is no unpleasant smell, and flies are conspicuous by their absence.

(To be continued.)

[2] The spelling of this word is uncertain. It is spelt differently in different parts of the report. In a recent number of the R.A.M.C. Journal Lieutenant-Colonel Cecil Birt spells the name of the fly, P. pappatasii, which appears to us preferable. The original form seems to have been "pappataciflieber."—ED. L.

MEDICINE IN THE ENCYCLOPÆDIA BRITANNICA.[1]

II.—PURE MEDICINE.

WE proceed to review briefly some of the more important articles on general medical subjects, dealing in this note with the volumes from A to I.

The subject of Aphasia is discussed clearly and succinctly in an article of about two and a half columns in length. The views of Pierre Marie in opposition to current teaching on the subject are briefly mentioned in a footnote. The various meanings attaching to the word "catarrh," as applied to the effects of conditions of irritation of the respiratory and other mucous membranes, are described, though it is perhaps not made clear that an inflammatory reaction is the basis of catarrhal states. Catalepsy and its associations are described and referred to the class of functional nervous disorders, but this condition is also mentioned as occurring in association with epilepsy and grave forms of mental disease. Cramp is described as a painful spasmodic contraction of muscles. In addition to the common form of cramp in the limbs, which is stated to be associated frequently with a rheumatic or gouty tendency, other forms of muscular spasm are mentioned, including writer's cramp. Gastralgia is referred to as cramp of the stomach, which seems to us to apply too definite a pathology to this somewhat vague condition. The article on Cretinism describes the appearance of the cretin and differentiates this disease from Mongolism, achondroplasia, and infantilism. The use of thyroid extract in treatment is discussed. It would have been an advantage to indicate that the secretion of the thyroid gland, to the absence or deficiency of which the disease is attributed, is an internal secretion, in view of the fact that this work is intended for non-medical as well as professional readers.

The Pathology of the Digestive Organs is reviewed in a long article, in which the various general diseases and abnormalities of structure and function are enumerated and briefly described. In dealing with appendicitis, it is stated that it appears to be increasing in frequency, and that it is associated by many with the modern deterioration in the teeth. The former of these statements is probably correct, but the latter is open to question. Perityphlitis is mentioned as a separate condition with very similar symptomatology, and is regarded as "doubtless in former days frequently due to the appendix, an acute or chronic inflammation of the walls of the cæcum often leading to abscess formation outside the gut, with or without direct communication with the canal." This somewhat vague description is misleading, and the term perityphlitis might with advantage be dropped, since it is a relic of an erroneous interpretation of appendicular disease. In connexion with diseases of the colon, membranous colitis is described as a very severe inflammation, whereas from the description it is evident that under this heading the condition of mucous colic is included, the inflammatory factor in which is now regarded as doubtful, or at any rate subsidiary. In connexion with the subject of tuberculous abdominal disease the statement that "it is hardly possible that tubercular invasion of the mesenteric glands can ever occur unaccompanied by peritoneal infection" is certainly not in accordance with recent researches, which have clearly demonstrated that such an invasion may occur, even without any discoverable lesion in the intestinal mucous membrane. In other respects the article gives a useful *résumé* of the pathology of diseases of the digestive organs.

Diuretics are described and classified according to their mode of action. The article on Diphtheria is an admirable account of the main facts regarding this disease, its causation and treatment, and contains also a critical examination of some of the more important problems connected with its epidemiology. The conditions governing the general prevalence of diphtheria and its epidemic rise and fall are described; and the hypotheses which have been put forward to explain them, notably that of Dr. A. Newsholme, that diphtheria only becomes epidemic in years when the rainfall is deficient, are critically considered. The origin and use of antitoxin are well described and the results of its employment convincingly demonstrated. The article on Dysentery is also clearly and carefully written. The two varieties, amœbic and bacillary, are differentiated from one another, and the distinctions between the Shiga and Flexner strains of organisms in the bacillary form are brought out. The treatment is also discussed, and measures for prevention are enumerated. The subject of Dyspepsia is described in general and somewhat popular fashion, but useful advice is given in regard to treatment, notably in connexion with the quantity and nature of the food taken, the necessity for careful and efficient mastication, and the value of moderation and regularity.

Dreams are discussed in an interesting article, which also gives an account of the explanations that have been offered of their occurrence, including the views of classical and mediæval philosophers. Hallucination receives very detailed consideration in an article of no little interest. It is first defined and distinguished from illusion, then a classification is given, and the conditions under which hallucinations may occur, both in health and disease, are examined. The nature of the nervous processes underlying hallucination and the theories put forward by various psychologists are critically discussed. An interesting analysis is given of the evidence concerning so-called coincidental hallucinations—i.e., apparitions of persons known to be in distant places, more especially at or near the time of death. The results of the census of hallucinations made by the Society for Psychical Research are quoted. Hypochondriasis is defined in a short note about half a column in length, its symptoms and associations being outlined carefully. In the article on Hysteria the well-known definition of Möbius is quoted—viz., that it is "a state in which ideas control the body and produce morbid changes in its functions." The general and local manifestations of hysteria are very briefly stated. The fact that a hysterical attack may occur as an immediate sequel to an epileptic fit is mentioned, and a warning is given that in cases of petit mal the post-epileptic character of the hysterical symptoms is likely to be overlooked. Treatment is dismissed with but little notice, but the important distinction between hysteria and malingering is insisted upon.

A short but interesting note on Hydropathy contains a historical account of its development as a formal system of treatment and affords a summary of the various methods of applying water therapeutically which have been employed. The article on Hydrophobia deserves special commendation. It gives an admirable account of the disease as it occurs in dogs, and then a description of its characters in the human subject. The two forms in dogs—the furious and the dumb—are described in full detail, various stages being differentiated. A clear and intelligible account of the Pasteur treatment is given, and it is rightly pointed out that it is to be regarded as an anticipatory cure, since it is not exactly a treatment, being useless or nearly so when the disease is well established. Reference is also made to the recent attempts at actual treatment by means of antirabic serum by Babes and Lepp and by Tizzoni and Centanni. The value of the muzzling order as a means of eradicating the disease is discussed, and due tribute is paid to Mr. Walter Long, the Minister who so successfully enforced that order in this country. An interesting presentation of the chief facts regarding Hypnotism is contained in the article devoted to that subject. After a brief historical account of the chief discoveries in connexion with hypnotic states, the effects of suggestion are described and post-hypnotic results are considered. The theory of mental dissociation is carefully enunciated and its merits are pointed out. This theory regards hypnosis as a state of relative dissociation and assumes "a temporary functional depression of all or of many of the associations or nervous links between the neural dispositions." The medical applications of hypnotism and its possible dangers are discussed.

Influenza forms the subject of an interesting article in which the origin and spread of the disease are discussed as well as its symptomatology and treatment. The evidence that the dissemination of influenza occurs by human agency, and not, as was formerly supposed, by atmospheric influences, is given, and suggestions are offered with a view to lessening the spread of the disease in epidemics. The subject of Insanity forms the basis of a long article, containing a valuable and practical account of the ordinary forms of mental alienation, both

[1] Article I. was published in THE LANCET of Feb. 25th, 1911, p. 530.

congenital and acquired. The causes of insanity are enumerated. The various forms of idiocy, imbecility, and insanity are classified and described. The classifications given are practical and satisfactory. The legal aspects of insanity are also considered at some length. The treatment is discussed in a special section of the article, giving suggestions for the best methods of carrying out treatment sympathetically and effectively. Hospitals for the acutely insane, with outdoor departments for advice and diagnosis of early cases, and colonies for the chronic insane patients are recommended. From the above brief notes it will be gathered that the medical writers for the Encyclopædia Britannica have realised well their responsibilities, and on the whole have also performed the difficult task of writing on highly technical subjects in such a way as to be informatory to the general public while preserving a position of scientific authority. The pure medicine in the remaining volumes of the issue, containing as they do the inclusive article on Medicine, will be considered later.

Looking Back.

FROM

THE LANCET, *SATURDAY*, March 2nd, 1833.

ST. THOMAS'S HOSPITAL.

GLANDERS IN THE HUMAN SUBJECT.

"A new disease is opened to us" said some of the medical officers of this hospital, after examining the body of one of Dr. Williams's patients on Monday, February the 18th, in the dead-house. Drs. Williams, Elliotson, Roots, and Bright, and Mr. Travers and Mr. Youatt (London University), with several other professional gentlemen and a crowd of students, were present on this occasion. The corpse was that of a man, who had been admitted ten days or a fortnight before, for we hardly know what, nor could learn. The case progressed up to Thursday the 14th, when a symptom appeared which Dr. Williams supposed to be "gout in the head." The attention of Dr. Elliotson was soon after called to the man, who, when seen by that gentleman, presented the following diseased characters. Several large phlyzaceous pustules appeared on the face and neck; a profuse stinking discharge issued from each nostril; there was swelling and bright redness of the eyelids, so as to close the eyes, and gangrenous inflammation of the right temple and adjoining part of the nose; soft fluctuating swellings, some red, some livid, some pinkish arose in the upper and lower extremities, and one of great size was on the head. His age was 23, but he appeared to be 40.

"This man has glanders," observed Dr. Elliotson, immediately; "have you ever been in a stable, my man?"—"Yes, Sir, I have been in stables all my life."—"Have you had anything to do with glandered horses?"—"Oh, yes, Sir, master had a glandered horse twelve months ago."—"And did any of the snivel ever fall upon any part of your body?"—"Yes, Sir, I have had my hand covered with it."

The man then said, "Oh, then I've got the glanders, and I shall die, but so happy, because I die through the horses, and I know what I've got." There was a scar on his right hand. He eventually became delirious, and was obliged at last to be strapped down; and a short time before he died, kept calling out, during an hour or more, "Stop that horse! stop that horse."

The inspection of the body, which was opened by Mr. Rush, excited great interest. Dr. Elliotson entered the dead-house under the certain expectation, that the result would tend to establish the position so indisputably urged in his paper, in the 16th volume of the *Medico-Chirurgical Transactions*, and verified in several instances in this journal, that glanders was communicable from the horse to man.* Dr. Williams did not entertain the same impression, either not crediting, or appearing not to be aware of, the facts on record tending to establish the fact of the occurrence of this disease in man. Neither did Mr. Travers appear to have made up his mind in the affirmative of the question. Before leaving the place of autopsy, however, no doubt on the subject seemed to exist in the breasts of either of the gentlemen present. Mr. Youatt (the lecturer on veterinary medicine) attended, on invitation, to witness the inspection; and to this gentleman reference was made for his opinion on each peculiar morbid appearance. The representations of Mr. Youatt tended in most instances to confirm the views entertained by Dr. Elliotson, and also, apparently with equal conviction, by Dr. Roots, with regard to the case. The ulcerations did not all present an equally glanderous aspect; but in most of them, especially in one found in the trachea, Mr. Youatt observed, that it presented just such an appearance as he should have expected to find in the horse—rather shallower however in the man than in the brute. He called it a true glanderous chancre. The frontal sinus was filled with discharge, and the membrane of the septum was ulcerated, and presented exactly the appearance seen in that part of glandered horses. At the bottom of the suppurations and in the schneiderian membrane, several such granules were found as appear in the horse in the early stage of the disease, and the existence of which granules has caused the French to call it the "tubercular disease."

The case, in short, so precisely agrees with all the other published cases of alleged glanders in the human subject, that not a doubt can reasonably be entertained on the matter.

(Here follow, in the original, four columns entitled "Mr. Youatt's Report of the above Case." We have not transcribed them for lack of space.)

* A case, if we mistake not, is also on record in some of the old Journals, which has not subsequently been quoted, where a great kitchen knife, which had been employed in skinning a glandered horse, was afterwards used by a cook, who accidentally cut himself with it, and died in a short time with all the symptoms of glanders.—REP. L. March 2, 1833.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 7526 births and 5345 deaths were registered during the week ending Feb. 25th. The annual rate of mortality in these towns, which had been equal to 16·0, 17·6, and 17·2 per 1000 in the three preceding weeks, declined to 16·2 in the week under notice, and was equal to the average annual death-rate recorded in these towns and also in London during the first eight weeks of the current quarter. The annual death-rates in the 77 towns during last week ranged from 7·0 in Bury, 7·7 in Hornsey, 8·3 in King's Norton, and 8·4 in Handsworth (Staffs), to 21·3 in St. Helens, 21·9 in Wigan, 22·0 in Stoke-on-Trent, and 25·9 in Middlesbrough. The 5345 deaths from all causes in the 77 towns showed a decline of 338 from the number returned in the previous week, and included 601 which were referred to the principal epidemic diseases, against 477, 525, and 621 in the three preceding weeks; of these 601 deaths, 359 resulted from measles, 91 from whooping-cough, 53 (of infants under two years of age) from diarrhœa, 51 from diphtheria, 33 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The fatal cases of measles, which had steadily increased from 160 to 333 during the first seven weeks of the current year, further rose last week to 359, and caused the highest annual rates of 2·5 in Coventry, 2·6 in West Ham, 4·2 in Aston Manor, 5·4 in Devonport, and 7·5 in Sheffield. The deaths from whooping-cough, which had increased from 85 to 132 in the five preceding weeks, declined last week to 91; the highest death-rates from this disease were 1·2 in Willesden, in Reading, and in Norwich, 1·4 in Middlesbrough, and 1·5 in Bootle. The 53 deaths of infants under two years of age attributed to diarrhœa showed a decline of 11 from the number recorded in the previous week. The fatal cases of diphtheria, which had been 58 and 55 in the two preceding weeks, further declined last week to 51, and included 11 in London, 7 in Leeds, 5 in Manchester, 4 in Portsmouth, and 3 in Blackburn. The deaths referred to scarlet fever, which had been 21 in each of the three preceding weeks, rose to 33 last week; 6 deaths were registered in London, 5 in Liverpool, 3 in Manchester, and 2 each in Stoke-on-Trent, in Blackburn, and in Sheffield. The 14 fatal cases of enteric fever showed a decline of 2 from the number recorded in the previous week, and included 4 in London and its suburban districts. The number of scarlet fever patients under treatment in

the Metropolitan Asylums and the London Fever Hospital, which had been 1264, 1257, and 1276 in the three preceding weeks, declined to 1242 on Saturday last; 138 new cases of this disease were admitted to these hospitals during last week, against 130, 147, and 166 in the three preceding weeks. These hospitals also contained on Saturday last 906 cases of diphtheria, 586 of measles, 195 of whooping-cough, and 44 of enteric fever; in addition to these 35 cases of small-pox were admitted to the small-pox hospitals of the Metropolitan Asylums Board during last week. The 1540 deaths from all causes in London last week (showing a decline of 73 from the number in the previous week) included 395 which were referred to diseases of the respiratory system, against 365, 404, and 421 in the three preceding weeks. In the 77 towns 173 deaths resulted from different forms of violence, against 187 and 163 in the two preceding weeks, and 391 inquest cases were registered. The causes of 36, or 0·7 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in London and its eight suburban districts, in Manchester, Leeds, Bristol, Bradford, Newcastle-on-Tyne, Nottingham, Salford, and in 42 other smaller towns; the 36 uncertified causes of death in the 77 towns last week included 11 in Liverpool, 3 in Stoke-on-Trent, 3 in Birmingham, and 2 each in St. Helens, Rochdale, and Sunderland.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 888 births and 641 deaths were registered during the week ending Feb. 25th. The annual rate of mortality in these towns, which had been 18·2, 19·8, and 19·0 per 1000 in the three preceding weeks, declined again to 17·4 in the week under notice. During the first eight weeks of the current quarter the death-rate in these towns averaged 17·0 per 1000, and was 0·8 above the mean rate during the same period in the 77 English towns. The annual death-rates last week in the eight Scotch towns ranged from 14·6 and 15·4 in Aberdeen and Edinburgh to 20·8 in Perth and 25·0 in Dundee. The deaths from all causes in the eight towns last week showed a decrease of 57 from the number returned in the previous week, and included 76 which were referred to the principal epidemic diseases, against 63, 69, and 68 in the three previous weeks; these 76 deaths were equal to an annual rate of 2·1 per 1000, the highest epidemic rates being 4·2 in Perth and 5·9 in Leith. Of these 76 deaths from the principal epidemic diseases, 39 resulted from whooping-cough, 12 from diarrhœa, 9 from diphtheria, 8 from scarlet fever, 6 from measles, and 2 from enteric fever, but not one from small-pox. The fatal cases of whooping-cough, which had increased from 14 to 45 in the four preceding weeks, declined to 39 last week, of which 22 occurred in Glasgow, 8 in Leith, 5 in Dundee, and 3 in Edinburgh. The 12 deaths attributed to diarrhœa showed an increase of 3 upon the number returned in the previous week, and included 8 of infants under two years of age. The deaths from diphtheria, which had been 11 and 7 in the two preceding weeks, rose to 9 last week; 3 deaths were recorded in Glasgow and 2 in Edinburgh. The 8 fatal cases of scarlet fever showed an increase of 7 upon the number in the previous week, and included 4 deaths in Glasgow. The 6 deaths from measles showed a slight increase upon recent weekly numbers; 5 deaths were registered in Edinburgh. The 2 fatal cases of enteric fever occurred in Glasgow. The deaths in the eight towns referred to diseases of the respiratory system, which had increased from 117 to 181 in the four preceding weeks, declined last week to 139, but were 42 above the number returned in the corresponding week of last year. The deaths resulting from different forms of violence, which had been 28 and 22 in the two preceding weeks, further declined last week to 21. Of the 641 deaths from all causes in the eight towns last week, 180, or 28 per cent., occurred in public institutions. The causes of 25, or 3·9 per cent., of the total deaths were not certified or not stated; in the 77 towns last week the proportion of uncertified causes of death did not exceed 0·7 per cent.

HEALTH OF IRISH TOWNS.

In the 22 town districts of Ireland, having an estimated population of 1,163,596 persons, 596 births and 466 deaths were registered during the week ending Feb. 25th. The annual rate of mortality in these towns, which had been 19·6, 24·1, and 22·7 per 1000 in the three preceding weeks, declined again last week to 20·9, and was equal to the average annual rate recorded in these towns during the first eight weeks of the current quarter. During the same period the death-rate in the 77 largest English towns did not exceed 16·2 per 1000, and in the eight principal Scotch towns it was equal to 17·0 per 1000. The annual death-rate last week was equal to 23·8 in Dublin, 18·5 in Belfast, 24·7 in Cork, 22·6 in Londonderry, 9·6 in Limerick, and 13·6 in Waterford; in the 16 smallest of the Irish town districts the annual death-rate last week averaged 21·6 per 1000. The 466 deaths from all causes in the 22 town districts last week showed a decrease of 41 upon the number returned in the previous week, and included 25 which were referred to the principal epidemic diseases, against 26 and 29 in the two previous weeks; these 25 deaths were equal to an annual rate of 1·1 per 1000, the highest epidemic rates being 2·6 in Dublin and 4·8 in Sligo. Of these 25 deaths from the principal epidemic diseases, 10 resulted from whooping-cough, 5 from diarrhœa, 3 from measles, 3 from scarlet fever, 2 from diphtheria, and 2 from enteric fever, but not one from small-pox. The deaths from whooping-cough, which had been 9, 8, and 11 in the three preceding weeks, were 10 last week, and included 7 in Dublin. The 5 deaths from diarrhœa included 3 of infants under two years of age; 4 other deaths at this age were referred to enteritis. Of the 3 deaths from scarlet fever, 2 occurred in Dublin. The 3 fatal cases of measles, 2 of enteric fever, and 2 of diphtheria were all recorded in Dublin. The deaths in the 22 towns referred to diseases of the respiratory system, which had been 141 and 137 in the two preceding weeks, declined to 110 in the week under notice. The 466 deaths from all causes last week included 127, or 27 per cent., which occurred in public institutions. The causes of 12, or 2·6 per cent., of the deaths in the 22 towns last week were not certified either by a registered medical practitioner or by a coroner after inquest; the proportion of uncertified causes last week did not exceed 0·7 per cent. in the 77 English towns, but was equal to 3·9 per cent. in the principal Scotch towns.

VITAL STATISTICS OF LONDON DURING JANUARY, 1911.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 4·1 per 1000 of the population, provisionally estimated at 4,912,054 persons in the middle of this year. In the three preceding months the rates were 5·9, 5·0, and 4·3 per 1000 respectively. The lowest rates last month were recorded in Paddington, Kensington, Chelsea, the City of Westminster, Hampstead, and Holborn; and the highest rates in Stoke Newington, Finsbury, Bethnal Green, Bermondsey, and Battersea. Scarlet fever continued to show a declining prevalence last month; among the several metropolitan boroughs the greatest proportional prevalence of this disease was recorded in St. Pancras, Stoke Newington, Battersea, Wandsworth, and Woolwich. The Metropolitan Asylums Hospitals contained 1280 scarlet fever patients at the end of last month, against 1825, 1727, and 1574 at the end of the three preceding months; the weekly admissions averaged 130, against 229, 183, and 155 in the three preceding months. Diphtheria was more prevalent than it had been in the preceding month; this disease was proportionally most prevalent last month in Hammersmith, Islington, Stoke Newington, the City of London, and Bermondsey. There were 842 diphtheria patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 866 and 827 at the end of the two preceding months; the weekly admissions averaged 107, against 106 and 95 in the two preceding months. The prevalence of enteric fever showed a considerable decline from that recorded in other recent months; the greatest proportional prevalence of this disease was recorded in Finsbury, Bethnal Green, Poplar, Bermondsey, and Lewisham. The number of enteric fever

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JANUARY, 1911.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1911.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON...	4,912,054	—	598	516	—	74	6	22	324	2	1542	4·1	—	322	14	55	104	—	18	—	71	584	1·5	5915	16·5
West Districts.																									
Paddington	154,072	—	13	10	—	2	—	1	9	—	35	3·0	—	3	—	2	4	—	1	—	5	15	1·3	166	14·9
Kensington	185,607	—	18	12	—	1	—	1	12	—	44	3·1	—	30	1	—	6	—	—	—	1	38	2·7	253	19·2
Hammersmith	129,140	—	15	21	—	—	—	—	5	—	41	4·1	—	14	1	7	4	—	1	—	3	30	3·0	198	20·8
Fulham	186,190	—	15	23	—	2	—	4	8	—	52	3·6	—	12	1	4	2	—	1	—	1	21	1·5	179	13·1
Chelsea	75,673	—	4	3	—	—	—	—	3	—	10	1·7	—	2	—	—	1	—	—	—	—	3	0·5	95	17·0
City of Westminster	165,593	—	11	10	—	2	—	2	5	—	30	2·4	—	1	—	—	—	—	—	—	1	2	0·2	143	12·7
North Districts.																									
St. Marylebone	124,373	—	12	11	—	1	—	1	9	—	34	3·6	—	14	—	—	3	—	—	—	1	18	1·9	172	19·2
Hampstead	97,288	—	11	4	—	2	—	2	5	—	24	3·2	—	—	—	1	1	—	—	—	—	2	0·3	70	10·6
St. Pancras	238,187	—	37	31	—	1	—	1	11	—	81	4·4	—	25	1	2	10	—	1	—	2	41	2·2	338	19·3
Islington	355,550	—	40	67	—	6	—	1	17	1	132	4·8	—	37	1	6	9	—	2	—	7	62	2·3	467	17·8
Stoke Newington	55,260	—	10	11	—	—	—	—	4	—	25	5·9	—	1	—	—	2	—	—	—	—	3	0·7	57	14·0
Hackney	242,388	—	34	22	—	2	—	—	14	—	72	3·9	—	11	2	—	—	—	—	—	3	16	0·9	249	14·0
Central Districts.																									
Holborn	52,484	—	6	4	—	—	—	—	3	—	13	3·2	—	4	—	—	—	—	—	—	—	4	1·0	53	14·2
Finsbury	93,874	—	8	10	—	3	—	1	19	—	41	5·7	—	19	—	2	4	—	—	—	1	26	3·6	168	24·1
City of London	16,069	—	2	4	—	—	—	—	—	—	6	4·9	—	1	—	—	—	—	—	—	—	1	0·8	27	24·1
East Districts.																									
Shoreditch	113,981	—	8	9	—	1	—	—	12	—	30	3·4	—	9	—	1	3	—	—	—	1	14	1·6	184	22·0
Bethnal Green	131,855	—	10	12	—	6	—	1	23	1	53	5·2	—	6	—	1	6	—	1	—	5	19	1·9	189	18·9
Stepney	316,269	—	32	35	—	7	—	3	30	—	107	4·4	—	14	1	2	7	—	3	—	5	32	1·3	389	16·7
Poplar	172,917	—	17	17	—	7	2	—	13	—	56	4·2	—	13	—	5	5	—	2	—	1	26	2·0	253	19·7
South Districts.																									
Southwark	212,560	—	30	22	—	4	2	—	14	—	72	4·4	—	23	—	2	5	—	—	—	5	35	2·1	319	20·5
Bermondsey	126,919	—	14	22	—	5	—	1	11	—	53	5·4	—	15	—	—	4	—	2	—	4	25	2·6	206	21·7
Lambeth	330,000	—	39	21	—	6	—	2	16	—	84	3·3	—	10	2	2	4	—	3	—	6	27	1·1	364	14·9
Battersea...	190,434	—	32	26	—	2	—	—	13	—	73	5·0	—	29	—	6	8	—	—	—	7	50	3·4	249	18·2
Wandsworth	314,037	—	60	32	—	3	—	—	18	—	113	4·7	—	8	—	4	8	—	—	—	5	25	1·0	270	11·8
Camberwell	289,130	—	42	18	—	4	—	1	23	—	88	4·0	—	13	2	3	5	—	1	—	2	26	1·2	333	15·6
Deptford	120,715	—	16	7	—	2	2	—	9	—	36	3·9	—	2	—	1	1	—	—	—	1	5	0·5	125	14·2
Greenwich	114,872	—	15	16	—	—	—	—	5	—	36	4·1	—	—	—	1	—	—	—	—	—	1	0·1	90	10·4
Lewisham	169,078	—	14	21	—	4	—	—	10	—	49	3·8	—	4	2	2	1	—	—	—	1	10	0·8	166	13·3
Woolwich...	137,489	—	32	15	—	—	—	—	2	—	49	4·6	—	2	—	1	1	—	—	—	3	7	0·7	143	14·5
Port of London	—	—	1	—	—	1	—	—	1	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—

† The death-rates are corrected for variations in sex- and age constitution of the populations of the several boroughs. The population of [illegible]

* Including membranous croup.

patients under treatment in the Metropolitan Asylums Hospitals, which had been 134 and 88 at the end of the two preceding months, had further declined to 68 at the end of last month; the weekly admissions averaged 7, against 16 and 11 in the two preceding months. Erysipelas was proportionally most prevalent in Finsbury, Bethnal Green, Stepney, Bermondsey, and Camberwell. The 22 cases of puerperal fever notified during the month included 4 in Fulham, 3 in Stepney, and 2 each in the City of Westminster, Hampstead, and Lewisham. Of the 2 cases notified as cerebro-spinal meningitis, 1 belonged to Islington and 1 to Bethnal Green.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates are further corrected for variations in the sex and age constitution of the several boroughs. During the four weeks ending Jan. 28th the deaths of 5915 London residents were registered, equal to a corrected annual death-rate of 16·5 per 1000, against 17·4 and 15·8 in the two preceding months. The death-rates last month ranged from 10·4 in Greenwich, 10·6 in Hampstead, 11·8 in Wandsworth, 12·7 in the City of Westminster, 13·1 in Fulham, and 13·3 in Lewisham, to 20·5 in Southwark, 20·8 in Hammersmith, 21·7 in Bermondsey, 22·0 in Shoreditch, and 24·1 in Finsbury and in the City of London. The 5915 deaths from all causes included 322 which were referred to measles, 14 to scarlet fever, 55 to diphtheria, 104 to whooping-cough, 18 to enteric fever, and 71 (among children under two years of age) to diarrhœa and enteritis. The lowest death-rates from these diseases in the aggregate were recorded in Chelsea, the City of Westminster, Hampstead, Deptford, and Greenwich; and the highest rates in Kensington, Hammersmith, Finsbury, Bermondsey, and Battersea. The 322 deaths from measles were equal to the number recorded in the previous four weeks, but were nearly double the corrected average number for the first four weeks of the years 1906–10; the highest death-rates from measles last month occurred in Kensington, St. Marylebone, Finsbury, Bermondsey, and Battersea. The 14 fatal cases of scarlet fever were equal to only one-third of the corrected average number; of these 14 deaths, 2 belonged to Hackney, 2 to Lambeth, 2 to Camberwell, and 2 to Lewisham. The 55 fatal cases of diphtheria were 13 fewer than the corrected average number; this disease was proportionally most fatal in Hammersmith, Fulham, Finsbury, Poplar, and Battersea. The 104 deaths from whooping-cough were 11 below the corrected average number; this disease showed the greatest proportional mortality in St. Pancras, Finsbury, Bethnal Green, and Battersea. The 18 fatal cases of enteric fever were slightly above the corrected average number, and included 3 in Stepney, 3 in Lambeth, 2 in Islington, 2 in Poplar, and 2 in Bermondsey. The 71 deaths from diarrhœa and enteritis among children under two years of age included 7 in Islington and in Battersea, 6 in Lambeth, and 5 each in Paddington, Bethnal Green, Stepney, Southwark, and Wandsworth. In conclusion, it may be stated that the aggregate mortality in London from the principal infectious diseases (excluding diarrhœa) was 26 per cent. above the average.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

THE undermentioned Lieutenants to be Captains (dated Jan. 29th, 1911):—George F. Dawson, Thomas McC. Phillips, Harry V. B. Byatt, Harold S. Dickson, Ronald E. Todd, Gerard Petit, Forbes J. Stuart, John B. Hanafin, Harold Gibson, William R. O'Farrell, John A. Renshaw, Cecil A. T. Conyngham, Dalziel B. McGrigor, Richard G. S. Gregg, William A. Spong, Herbert W. Carson, Henry P. Hart, Francis T. Dowling, Richard F. O'T. Dickinson, Harold T. Treves, James C. L. Hingston, Arthur E. B. Jones, Benjamin A. Odlum, Alexander Hendry, Charles P. O'Brien Butler, John R. Lloyd, and James F. Grant.

Major John H. Rivers retires on retired pay (dated Feb. 25th, 1911).

Lieutenant-Colonel J. Will, at present in medical charge of the troops at Kinsale, has been selected for the appointment of Staff Officer to the Administrative Medical Officer, Northumbrian Division, at Richmond, Yorks, with effect from April 1st next. Lieutenant-Colonel M. O'D. Braddell, commanding the Station Hospital at Lahore, has been granted six months' leave of absence on medical certificate. Lieutenant-Colonel W. W. Pike, D.S.O., in charge of the Military Hospital at Tidworth Park, has been placed under orders for service in Egypt. Lieutenant-Colonel C. W. Johnson, from Gibraltar, has taken over charge of the Military Hospital at Bulford Camp, Salisbury Plain. Major D. J. Collins has been appointed to officiate as Staff Officer to the Principal Medical Officer of the Irish Command. Major G. A. Moore, on the completion of the tenure of his appointment, has been transferred from the medical charge of the Royal Military Academy, Woolwich, for duty at Chatham as Specialist in Laryngology. Major F. W. Begbie, from Colchester, has been placed under orders to join at Tidworth Park as Assistant Administrative Medical Officer for Royal Army Medical Corps Training. Major H. D. Packer has been transferred from Devonport to Exeter. Major G. H. Goddard, from Alderney, has taken up duty at Shorncliffe. Captain G. S. C. Hayes, from the London District, has been appointed Medical Officer to the 1st Life Guards at Windsor. Captain E. B. Booth has been appointed for duty in the Irish Command. Captain J. G. Gill has been granted six months' general leave of absence home from India. Captain J. T. Johnson has been transferred from Sheffield to Newcastle. Captain R. J. Cahill, on completion of a tour of service in India, has been posted to the Curragh Camp for duty. Captain A. C. Vidal, from Pretoria, has taken up duty at Bloemfontein. Captain C. D. Myles, from Cosham, has joined at Gosport. Captain A. C. Amy has been appointed Specialist in Radiography and Electrical Science to the Seventh (Meerut) Division. Lieutenant H. G. Robinson has been transferred from Sheffield to Litchfield. Lieutenant G. Rollaston has been appointed to the West African Medical Staff, Sierra Leone Protectorate, from the Special Reserve. Lieutenant S. W. Kyle, from Mullingar, has taken up duty at Belfast. Lieutenant P. E. C. Pottinger has embarked for a tour of service in India.

INDIAN MEDICAL SERVICE.

Colonel C. H. Beatson has arrived home on leave. Colonel G. W. P. Dennys has taken over the duties of Principal Medical Officer of the Derajat and Bannu Brigades. Lieutenant-Colonel A. J. Macnabb has been appointed Presidency Surgeon of Kashmir by the Foreign Department of the Government of India. The Honourable Lieutenant-Colonel C. Mactaggart, Inspector-General of Prisons in the United Provinces, has been granted leave of absence from India for one year and eight months. Lieutenant-Colonel A. W. Dawson has been appointed to hold Civil Medical Charge of Roorkee Cantonment. Lieutenant-Colonel J. Crimmin, V.C., C.I.E., has been appointed by H.E. the Governor of Bombay to act as Presidency Surgeon, in succession to Major S. H. Burnett, proceeding on leave. Lieutenant-Colonel R. J. Marks has been posted as Civil Surgeon to Gorakhpur. Lieutenant-Colonel W. A. Sykes has arrived home on leave of absence from India. Major A. W. T. Buist has been appointed Civil Surgeon at Ambala. Major W. Selby has been transferred from Gorakhpur to Lucknow as Civil Surgeon. Major T. B. Kelly has been appointed a Specialist in Ophthalmology. Major J. M. Crawford, on return from leave, has taken over duty as Civil Surgeon of Benares. Major A. Miller, Madras Presidency, has arrived home on leave. Captain W. J. Powell, on return from furlough, has been appointed to officiate as Superintendent of the Central Jail at Jubbulpore. Captain C. W. Cazaly has been appointed Specialist in Advanced Operative Surgery to the Fifth (Mhow) Division. Captain D. N. Anderson has been granted six months' extension of his leave, on medical certificate. Captain G. Fowler, civil surgeon of Akola, has been deputed to attend the investigations in connexion with malarial fevers at Amritsar. Captain C. A. F. Hingston, personal assistant to the surgeon-general with the government of Madras, has been appointed Medical Inspector of Factories in the Madras Presidency. Captain C. Dykes has been transferred from Saharanpur to Jaunpur as Civil Surgeon. Captain E. T. Harris has been granted eight months' leave of absence from India. Captain F. F. Elwes, Surgeon to H.E. the Governor of Madras, has been appointed District Medical and Sanitary Officer at Cuddapah. The services of

Captain C. R. O'Brien have been placed permanently at the disposal of the Government of Eastern Bengal and Assam. Captain D. Munro, Bengal Presidency, has arrived home on leave. Lieutenant W. T. Keyworth has been appointed Specialist in Midwifery and Diseases of Women and Children to the Sixth (Poona) Division. Lieutenant A. A. C. McNeill has been appointed to officiate in medical charge of the 51st Sikhs and No. 3 Company Sappers and Miners at Peshawar.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

The undermentioned lieutenants are confirmed in their rank:—James B. Williamson, Claude Johnson, John Adams, David T. M. Large, David T. Richardson, William L. Webster, and Frederick W. Lumsden.

TERRITORIAL FORCE.

Royal Field Artillery.

1st South Midland (Gloucestershire) Brigade, Royal Field Artillery: Surgeon-Captain James R. Bibby resigns his commission (dated Feb. 25th, 1911).

Royal Army Medical Corps.

2nd Home Counties Field Ambulance, Royal Army Medical Corps: Lieutenant Edwin A. Houchin is restored to the establishment (dated Dec. 15th, 1910).

5th London Field Ambulance, Royal Army Medical Corps: Lieutenant Robert Corfe to be Captain (dated Dec. 1st, 1910).

3rd Northumbrian Field Ambulance, Royal Army Medical Corps: August Frederick Perl to be Lieutenant (dated Jan. 14th, 1911).

3rd London (City of London) Field Ambulance, Royal Army Medical Corps: Lieutenant Harold A. T. Fairbank to be Captain (dated August 30th, 1910).

1st Scottish General Hospital, Royal Army Medical Corps: The undermentioned officers retire under the provisions of Paragraph 75 of the Territorial Force Regulations (dated Feb. 25th, 1911):—Lieutenant-Colonel John Gordon and Major George Rose.

For attachment to Units other than Medical Units.—Major John Alfred Masters, from the 2nd London (City of London) Field Ambulance, Royal Army Medical Corps, to be Major (dated Jan. 23rd, 1911).

Attached to Units other than Medical Units.—Lieutenant Alan L. S. Tuke to be Captain (dated Dec. 10th, 1910). Lieutenant-Colonel Charles C. Greig retires under the provisions of Paragraph 116 of the Territorial Force Regulations, and is granted permission to retain his rank and to wear the prescribed uniform (dated Feb. 25th, 1911). Lieutenant Edward Oliphant resigns his commission (dated Feb. 25th, 1911). Major James A. Rigby resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated Feb. 22nd, 1911).

Unattached List for the Territorial Force.—Stuart McDonald to be Second Lieutenant for service with the Durham University Contingent, Senior Division, Officers Training Corps (dated Feb. 1st, 1911).

STAFF TOUR FOR R.A.M.C. OFFICERS.

The following officers assembled at Colchester and took part in a medical staff tour which was held from Feb. 27th to March 2nd inclusive:—Surgeon-General J. C. Dorman, C.M.G.; Brigadier-General J. H. L. Haldane, C.B., D.S.O. (General Staff); Lieutenant-Colonel M. W. Russell, Lieutenant-Colonel W. G. Birrell, Lieutenant-Colonel D. V. O'Connell, Lieutenant-Colonel C. A. Lane, Major H. E. Winter, Major G. A. T. Bray, Major G. S. Mansfield, Major S. H. Fairrie, and Major A. W. Cooper, D.S.O.

THE VISION OF RECRUITS.

In view of the difficulty experienced by men who fire from the left shoulder in maintaining the necessary rapidity of rifle fire, the Army Council has decided as an experiment for one year to exclude from the Infantry, Cavalry, Artillery (except drivers), and Royal Engineers (except drivers) recruits whose vision is below 6/24 in the right eye, but who, if they reach the standard of 6/6 in the left eye, are accepted under existing regulations. When a recruit is below the 6/24 standard in the left eye he will not be accepted unless he possesses normal vision in the right eye. As this experiment is only applicable to the arms mentioned above, recruits rejected under it continue to be eligible for other corps and services.

Correspondence.

"Audi alteram partem."

CHARLES BELL AND THE MOTOR AND SENSORY FUNCTIONS OF SPINAL NERVES.

To the Editor of THE LANCET.

SIR,—The heading of this correspondence should be: "Did Bell or Magendie discover the motor and sensory functions of the anterior and posterior roots of the spinal nerves?"

Professor Keith is in error in his statement somewhat floridly made in your last issue to the effect that I quoted my own text-book as authoritative concerning the historical facts in connexion with the discovery of the motor and sensory functions of the spinal nerve roots made according to Professor Keith by Charles Bell and according to me by Magendie. I only quoted what I had written 20 years ago, accompanied by references to the original papers at my elbow, by which the accuracy of my statements could be verified or the reverse. Professor Keith believes that the discovery belongs to Sir Charles Bell, and without having himself given any actual quotation in support of his belief, says that it would be well for me to quote from the original work of the author in dispute so that readers of THE LANCET may form an unbiassed opinion. I will do so.

The original documents—neglecting "reproductions" and polemical misquotations subsequent to the year 1822—are in last resort, or in first resort: 1. Charles Bell: "Idea of a New Anatomy of the Brain," submitted for the observations of his friends by Charles Bell, F.R.S.E. (small 8vo, pp. 36, published by Strahan and Preston, printers, London; without date, but on collateral evidence the date 1811 is accepted, in spite of the date 1802, which is that assigned to it in the 1885 catalogue of the British Museum). A copy also exists in the library of the Royal Society, presented to it 18 years ago by Professor Jeffrey Bell. II. Magendie: "Expériences sur les Fonctions des Nerfs Rachidiens." (Experiments on the Functions of the Spinal Nerves). Journal de Physiologie Expérimentale et Pathologique, par F. Magendie. Tome II., année 1822, pages 276–9.

Two papers by Charles Bell in the Philosophical Transactions of the Royal Society for 1821 and 1822,[1] dealing with the nerves of respiration and with the nerves of the face, are only indirectly connected with the subject. The subsequent controversies alluded to by Professor Keith, and, in fact, all publications posterior to the date 1822, are without value as direct evidence bearing upon the main question. I therefore shall confine myself to that question as recorded in the two essential documents. Both are accessible, and the accuracy and completeness of my quotation and translation can therefore be readily verified.

I.—Bell, 1811: "Idea of a New Anatomy of the Brain (p. 21)—

I took this view of the subject. The *medulla spinalis* has a central division, and also a distinction into anterior and posterior fasciculi, corresponding with the anterior and posterior portions of the brain. Further, we can trace down the crura of the *cerebrum* into the anterior fasciculus of the spinal marrow, and the crura of the *cerebellum* into the posterior fasciculus. I thought that here I might have an opportunity of touching the *cerebellum*, as it were, through the posterior portion of the spinal marrow and the *cerebrum* by the anterior portion. To this end I made experiments which, though they were not conclusive, encouraged me in the view I had taken. I found that injury done to the anterior portion of the spinal marrow convulsed the animal more certainly than injury done to the posterior portion; but I found it difficult to make the experiment without injuring both portions.

Next, considering that the spinal nerves have a double root and being of opinion that the properties of the nerves are derived from their connections with the parts of the brain, I thought that I had an opportunity of putting my opinion to the test of experiment, and of proving at the same time that nerves of different endowments were in the same cord, and held together by the same sheath.

On laying bare the roots of the spinal nerves, I found that I could cut across the posterior portion of the spinal marrow without convulsing the muscles of the back; but on touching the anterior fasciculus with

[1] On the Nerves: Giving an Account of Some Experiments on their Structure and Functions, which lead to a New Arrangement of the System. Phil. Trans. R.S., 1821, pp. 398–424. The subject-matter of this inquiry is limited to the nerves of respiration. The subject is prosecuted in the next paper: Of the Nerves which Associate the Muscles of the Chest in the Actions of Breathing, Speaking, and Expression. Being a continuation of the paper on the Structure and Functions of the Nerves. Phil. Trans. R.S., 1822, pp. 284–312.

the point of the knife, the muscles of the back were immediately convulsed.

Such were my reasons for concluding that the *cerebrum* and the *cerebellum* were parts distinct in function, and that every nerve possessing a double function obtained that by having a double root. I now saw the meaning of the double connection of the nerves with the spinal marrow; and also the cause of that seeming intricacy in the connections of nerves throughout their course, which were not double at their origins.

The spinal nerves being double, and having their roots in the spinal marrow, of which a portion comes from the *cerebrum* they convey the attributes of both grand divisions of the brain to every part; and therefore the distribution of such nerves is simple, one nerve supplying its destined part. But the nerves which come directly from the brain come from parts of the brain which vary in operation; and in order to bestow different qualities on the parts to which the nerves are distributed, two or more nerves must be united in their course or at their final destination. Hence it is that the 1st nerve must have branches of the 5th united with it: hence the *portio dura* of the 7th pervades everywhere the bones of the cranium to unite with the extended branches of the 5th: hence the union of the 3rd and 5th in the orbit: hence the 9th and 5th are both sent to the tongue: hence it is, in short, that no part is sufficiently supplied by one single nerve, unless that nerve be a nerve of the spinal marrow, and have a double root, a connection (however remotely) with both the *cerebrum* and *cerebellum*.

p. 26—

The *cerebellum* when compared with the *cerebrum* is simple in its form. It has no internal tubercles or masses of cineritious cortex, and forms the *crus*; and the *crus* runs into union with the same process from the *cerebrum*; and they together form the *medulla spinalis*, and are continued down into the spinal marrow; and these crura or processes afford double origin to the double nerves of the spine. The nerves proceeding from the *Crus Cerebelli* go everywhere (in seeming union with those from the *Crus Cerebri*); they unite the body together, and control the actions of the bodily frame; and especially govern the operation of the viscera necessary to the continuance of life.

p. 27—

The cerebrum I consider as the grand organ by which the mind is united to the body. Into it all the nerves from the external organs of the senses enter; and from it all the nerves which are the agents of the will pass out.

p. 36—

The secret operations of the bodily frame, and the connections which unite the parts of the body into a system, are through the cerebellum and nerves proceeding from it.

No unprejudiced reader possessing even a slight acquaintance with the state of anatomical and physiological knowledge at the beginning of last century can fail to recognise that Bell in saying "that every nerve possessing a double function obtained that by having a double root" used the word "double" to denote *cerebral* and *cerebellar*, not motor and sensory. In Bell's view the spinal nerves being double, with roots from the cerebrum and from the cerebellum, convey the attributes of both grand divisions of the brain to every part (p. 23).

Cerebral (anterior) in Bell's idea is motor and sensory. Cerebellar (posterior) is visceral ("governing the operations of the viscera"—p. 26—"controlling the secret operations of the bodily frame"—p. 36).

That is the real meaning of Bell's argument, and it is entirely consistent with the one experimental fact brought forward in the pamphlet. Every physiologist who has repeated the experiment knows that in a recently killed animal the "posterior fasciculus of nerves" is inexcitable and the anterior fasciculus excitable (p. 22). But to infer from this fact alone that the posterior are sensory and the anterior motor was at that time, and would be now, wholly unwarrantable. And as a matter of historical fact Bell did not do so.

II.—Magendie, 1822. Experiments on the Function of the Roots of the Spinal Nerves. (*Journal de Physiologie*, tome ii., 1822, pp. 276–9.)

I had long desired to make an experiment in which I should cut on an animal the posterior roots of the nerves that spring from the spinal cord. I had attempted to do so many times without success on account of the difficulty of opening the vertebral canal without injuring the cord, thereby causing the death, or at least serious injury, of the animal. Last month a litter of eight little dogs, aged 6 weeks, were brought to my laboratory; these animals appeared very suitable for my purpose, and in fact I was able with a sharp scalpel almost by a single stroke to expose the posterior half of the spinal cord surrounded by its sheaths. In order to expose the cord almost completely it was only necessary to cut through the dura mater; this was easily done, and I then had under my eyes the posterior roots of the lumbar and sacral nerves which being raised successively by the blades of a small pair of scissors could be cut on one side, the cord remaining intact. I did not know what would be the result of this proceeding. I closed the wound by a suture through the skin and observed the animal. At the outset I thought that the limb corresponding to the divided nerve was entirely paralysed; it was insensitive to pricking and to the strongest compression; it also appeared to be immobile, but before long to my great surprise I saw it move in a very evident manner although its sensibility remained absolutely abolished. A second and a third experiment gave me exactly the same results. I began to regard as probable that the posterior roots of the spinal nerve might have functions different from those of the anterior roots and that they were especially concerned with sensibility. It naturally occurred to one to cut the anterior roots, leaving the posterior roots intact, but this undertaking was more easy to conceive than to execute. How was it possible to expose the anterior part of the cord without interfering with the posterior roots? I confess that at first this seemed impossible, but the idea pursued me for two days and at last I made up my mind to attempt to get a sort of cataract knife in front of the posterior roots with a very narrow blade enabling me to cut the roots by compressing them between the edge of the knife and the posterior surface of the vertebræ, but I was obliged to abandon this attempt on account of the large veins in the vertebral canal. In making these attempts I noticed that by traction of the vertebral dura mater it was possible to distinguish the anterior roots grouped in bundles at the point where they emerge from the membrane. That was enough for me and in a few moments I had divided all the pairs that I wanted to divide. As in previous experiments I divided the nerve on one side only in order to have a term of comparison. It may be imagined with what curiosity I watched for the effects of this operation. There was no room for doubt, the limb was completely immobile and flaccid while it preserved an unequivocal sensibility. Finally for the sake of completeness I have cut at the same time the anterior and the posterior roots; sensation and motion were then absolutely lost.

I have repeated and varied these experiments on many kinds of animals; the results that I have just described have been completely confirmed for the anterior as well as for the posterior roots. I am continuing these experiments and shall give a more detailed account of them in the next issue. I content myself with laying down at present as positive that the anterior and posterior roots of the nerves that spring from the spinal cord have different functions, that the posterior appear to be more specially appropriated to sensation while the anterior appear to be more especially associated with movement.

Comparing these two descriptions, I think it must be obvious that the case as presented by Magendie in 1822 is clarity itself as compared with that given by Bell in 1811. No other part of Bell's pamphlet (nor any portion of his Philosophical Transactions papers of 1821 and 1822) helps to make his case any clearer—on the contrary. No unprejudiced reader can fail to understand that Bell did *not* discover the motor and sensory functions of the spinal roots, and that Magendie actually did so. To speak of a "Bell-Magendie" law is a weak compromise

The sentence quoted from my text-book of 1891 in my first letter to the effect that "The facts were discovered by Magendie (1822)," and that "Charles Bell (1811) to whom the discovery is commonly ascribed, observed motion on excitation of the anterior roots of a recently killed animal, and inferred that the anterior or 'cerebral' roots are motor and sensory, and that the posterior or 'cerebellar' roots serve to govern vital actions" (*loc. cit.*, 3rd ed., p. 485) is as accurate as is possible in a small number of words. No statement subsequent to 1822 is "*authoritative.*"

I am, Sir, yours faithfully,

A. D. WALLER,
Physiological Laboratory, University of London, S.W.

Feb. 27th, 1911.

THE TREATMENT OF MALIGNANT STRICTURE OF THE ŒSOPHAGUS, WITH ESPECIAL REFERENCE TO INTUBATION AND TO RADIUM.

To the Editor of THE LANCET.

SIR,—In your last issue (Feb. 25th) there appears a very generous and excellent summary of my communication to the Medical Society of London on Feb. 13th on this subject, but there occurs one printer's error which, if left uncorrected, would lead to an entirely wrong impression of my radium treatment, the essential feature of which is the employment of large quantities. Near the end of the article Dr. Finzi and I are credited with "using from 50 to 20 milligrammes on the gullet for periods varying from 12 to 28 hours on end, repeated in some instances as many as six times." A cypher has obviously been omitted by the printer, for the amounts mentioned by me were "50 to *200* milligrammes" of pure radium salt. Twenty milligrammes is a very small dose to employ in a malignant tumour of any size, and though Dr. Morton claims to have obtained some substantial results with about 34 milligrammes of radium salt (which by a slip he describes as "pure radium"), yet I should strongly object to any endeavour to check the claims made by Dr. Finzi and myself being based on the employment of anything less than 50 milligrammes, which was the minimum amount used in our earlier cases. With the larger doses of 100 and 150 and 200 milligrammes our later results have commensurately improved. I have heard of several hospital and private patients with malignant disease in the gullet or in the throat who have been submitted to, what is really, though not intentionally, a bogus radium treatment. At one very large hospital *two* milligrammes of radium were applied for 18 or

22 hours respectively in the gullet of two patients suffering from cancer, and at two other large hospitals insignificant doses of radium salt have been applied for an inadequate time. These applications were made in good faith by those who probably did not then appreciate the uselessness of such very small amounts, but the employment of inadequate doses in hospital and private practice by practitioners without technical knowledge or experience either of radium or of gullet work will, if persisted in after this protest, come very near to quackery.

There is another point of technique mentioned in your report of the subsequent discussion which, if followed, will, in my opinion, be not unlikely to lead to occasional disaster. Mr. Tilley is represented as saying that "when an anæsthetic was required for endoscopy of the œsophagus chloroform was better than ether." Mr. Tilley, as a matter of fact, put the question of choice of anæsthetic more strongly than that; he said that ether was contra-indicated and that chloroform was *the* anæsthetic to employ in œsophagoscopic procedures. To this sweeping pronouncement I strongly dissented. In some cases where the heart is sound and the patient not debilitated chloroform may be safely and preferably administered in gullet work, and it undoubtedly causes less local congestion than ether anæsthesia alone, more especially if the latter is given by the closed method before the endoscope is introduced; moreover, ether by the closed method is contra-indicated where, as frequently happens, there is much laryngeal involvement or irritation, and in cases with abductor paralysis; but chloroform alone also has its disadvantages, and is contra-indicated in those cases to which Mr. Tilley alluded in another connexion—viz., those with a tendency to syncope when the endoscope is introduced: in other words, in patients debilitated by semi-starvation and toxæmia from advanced disease and whose hearts are weak. To give chloroform *alone* in such cases is to court disaster. It is for this reason that Chevalier Jackson, an œsophagoscopist of enormous experience, insists on ether as the main anæsthetic with occasional whiffs of chloroform. Dr. G. A. H. Barton, who anæsthetises my private patients, relies mainly on the chloroform and ether mixture given by the *open* method in cases with a weak heart; this can be alternated with spells of chloroform alone after the heart has been sufficiently stimulated by the C.E. mixture.

Another point of anæsthetic technique seriously recommended has only to be stated to carry its own refutation with it. Mr. Tilley came to the meeting provided with an œsophagoscopic tube, together with Mr. Bellamy Gardiner's anæsthetic tube, which can be linked up with the proximal end of the œsophagoscopic tube. This well-known apparatus Mr. Tilley displayed to the audience and handed to the President, and explained that the chloroform was pumped through the Bellamy Gardiner anæsthetic tube into the œsophagoscope! We may be quite sure that neither Mr. Bellamy Gardiner nor any other anæsthetist in his senses would dream of administering a general anæsthetic *through the œsophagoscope*, not even in those cases where there is a communication between the gullet and the air passages.

There are other points of œsophagoscopic technique on which I do not see eye to eye with Mr. Tilley, but they are too technical for discussion outside the Laryngological Section. It was very evident to those present who were really expert in endoscopic procedures in the gullet that, absent-mindedly wandering from the subject under discussion, Mr. Tilley was *talking* œsophagoscopy and *thinking* bronchoscopy, of which latter he is admittedly such an experienced and accomplished exponent.

I am, Sir, yours faithfully,

Weymouth-street, W., Feb. 27th, 1911. WILLIAM HILL.

THE LANTERN TEST FOR COLOUR BLINDNESS.

To the Editor of THE LANCET.

SIR,—In reference to the letter of Mr. Buxton in THE LANCET of to-day, in which he says that in many particulars his lantern anticipated mine, I should like to point out that I am not aware of any lantern which has anticipated any essential point of mine. My lantern was constructed more than 22 years ago, and has never been altered in any important particular. A full description of the lantern was published in my pamphlet "On the Detection of Colour Blindness from a Practical Point of View"[1] in 1889, at which time I was a member of the International Code of Signals Committee.[2] I took up the subject of colour blindness for my thesis for M.D. After the publication of my papers numerous lanterns were brought out. I tested some of these with persons that I knew to be colour blind, and with some failed to detect a single colour-blind person. I will now deal with Mr. Buxton's statement in which he says that in two points his lantern possesses an advantage over mine. He says that with his the illumination can be readily varied; this is accomplished in my lantern by means of the neutral glasses. The second supposed advantage is that of comparing the wools with the light; this method was originally employed by me (see my book on "Colour Blindness," first edition, page 115). The objection to this method is that it cannot be employed in the dark, and is therefore more suitable for the classification test, but anyone can if he wish use this method with any lantern. My tests were all based on the special facts of colour blindness which I was the first to discover. Most of these facts have now been rediscovered (probably independently) by other persons and claimed as new by them. A few days ago an ophthalmic surgeon wrote to me about a lamp which he had purchased which was said to be mine and was made by a maker of whom I had not previously heard. I also find that these lamps, which may be useless, are being extensively advertised on the continent.[3] The essential parts of my lantern are the glasses. I differ from Mr. Buxton in his opinion that the colours of his glasses are almost identical with mine. I discovered that there were cases of shortening of the red end of the spectrum without any other defect of colour perception. These cases fail to see a red of a certain wave-length, therefore it is absolutely necessary that the lantern should be able to show a red consisting only of these rays. It is not possible to show a red of this kind with Mr. Buxton's lamp. I have examined all his glasses with my spectrometer and I would not pass or use any one of them in my lantern. They are very defective from my point of view. I can obtain numerous important combinations with my lantern; no combinations at all are possible with Mr. Buxton's instrument. The neutral glasses of my lantern are also absolutely necessary. In reference to the concluding remarks, I may mention that the Admiralty are now using my lantern and that Fleet-Surgeon Pryn reported on it as the best form of lantern.

I am, Sir, yours faithfully,

F. W. EDRIDGE-GREEN.

The Institute of Physiology, University College, Gower-street, London, Feb. 25th, 1911.

[1] London: Baillière, Tindall, and Cox.

[2] See THE LANCET, Oct. 19th (p. 797) and Nov. 30th (p. 1146), 1889. See also a leading article in THE LANCET of Nov. 9th, 1889, p. 964.

[3] My lantern can be obtained from Messrs. Reiner and Keeler, 9, Vere-street, W.

THE PHILADELPHIA IDEA AS TO MEDICAL TEACHING.

To the Editor of THE LANCET.

SIR,—On several occasions within the last few years statements have been made in medical journals, here and abroad, to the effect that the medical schools of this country are not equipped with satisfactory opportunities for clinical teaching. Last spring the President of Cornell University, when delivering an address which should have been carefully prepared, made the extraordinary statement that no medical school in this country, with the exception of Johns Hopkins, had a hospital completely under its control, and therefore adequately used for teaching purposes. In the issue of THE LANCET of Feb. 4th, 1911, your correspondent in describing a proposed amalgamation between the medical department of Columbia University and the Presbyterian Hospital, refers to this plan as the "Johns Hopkins idea." It goes without saying that those of us who know much of medical teaching hold the Johns Hopkins medical department in the highest esteem, but it is only proper that the correct facts be stated. The object of this communication is to point out the fact (not as generally known as it should be) that every medical school in Philadelphia has as a part of its equipment a hospital which exists, not as an affiliated

institution, but as part and parcel of its teaching plant. As long ago as 1824, when the Jefferson Medical College was founded, it established an out-patient service in order to give its students the advantage of clinical material under its own control, and in 1841 the medical department of the University of Pennsylvania did likewise. In 1873 the Jefferson College inaugurated its plan for a complete hospital, and this institution was opened Sept. 17th, 1877, containing 160 beds. On June 4th, 1874, the hospital of the University of Pennsylvania went into active service. Three years ago the new Jefferson Medical College Hospital, costing $1,250,000, was completed, containing 300 beds, and from time to time the University Hospital has been considerably enlarged. As soon as it was started in 1881 the Medico-Chirurgical College established an out-patient department, and a few years afterwards erected a hospital. The Woman's Medical College of Pennsylvania also has a hospital known as the Hospital of the Woman's Medical College. The Hahnemann Medical College, the largest homœopathic school in this country, also has its own hospital, and the medical department of Temple University, the youngest of the Philadelphia schools, has under its direct control the Samaritan Hospital. It is interesting to note in this connection that all of these hospitals are under the control of the same boards of trustees as govern the institutions in which the students matriculate for the purpose of studying medicine, and in the Jefferson Medical College, in the University, and in the Medico-Chirurgical College, members of the Faculty who teach in the practical branches are by virtue of their professorial chairs in actual control and on duty in the wards. In other words, to be elected professor of medicine, therapeutics, or surgery in the Jefferson College means that a man is elected physician or surgeon to the Jefferson Medical College Hospital. It is therefore a matter of absolute control and not of friendly affiliation, and by this means only can satisfactory medical teaching in the medical school be accomplished. If, therefore, the principle of having an active hospital as a part of a thoroughly equipped medical school is to be given a specific name it should be called the "Jefferson College Idea" or the "Philadelphia Idea" and not the "Johns Hopkins Idea." As a matter of fact, barring the Johns Hopkins Hospital, there is, I believe, no other medical school in the United States so thoroughly equipped with hospital facilities under its own control as each of the Philadelphia medical teaching institutions. All of these institutions have, in addition, the opportunity of teaching their students in large hospitals which are thrown open to all the schools, such as the Pennsylvania and Philadelphia hospitals, for example. In other words, the Philadelphia schools have all the benefit of unattached hospitals possessed by institutions elsewhere, and in addition their ownership and control of their own hospitals.

As a matter of historical fact, the Jefferson College was the first medical institution in America to establish clinical teaching, and all its sister institutions in Philadelphia, with which it dwells in the most cordial friendship, have followed her example.

I am, Sir, yours faithfully,

Philadelphia, U.S.A., Feb. 11th, 1911. H. A. HARE.

DISEASES OF ELEPHANTS' TUSKS.

To the Editor of THE LANCET.

SIR,—I have been interested in reading Mr. Bland-Sutton's paper on the above subject read before the Hunterian Society, published in THE LANCET of Nov. 26th, 1910. It recalls to my mind the case of a tusk of an elephant which was found in this country tightly wedged between branches of a tree. Examination of the tusk showed that there had evidently been disease at its root, no doubt inflammation of the pulp, with probable abscess formation, and the evidence all goes to show that the suffering giant had managed to attain to the extraction of the offending member. It was impossible to assign a cause, but probably a bullet, as in the case quoted by Mr. Bland-Sutton, was at the root of the evil.

I have also in my possession the tushes of a hippopotamus I shot in Lake Nyassa, of which one of the lower curved teeth shows a cavity on its grinding surface opening into the pulp chamber with resulting periodontal inflammation and the laying down of a quantity of new dentine round the root. Of aberrant teeth I have an example in the skull of an old-man baboon, one of whose upper canines had been thrust out of line by the other teeth; this had grown long and projected out of the mouth, and must have served as a formidable weapon of offence in making the side-way slashes as they do when attacking.

I am, Sir, yours faithfully,

HUGH S. STANNUS, M.B. Lond.,
Medical Officer, Nyassaland Administration.

Zomba, Nyassaland, Jan. 16th, 1911.

THE LATE DR. JAMES EDMUNDS AND CÆSAREAN SECTION.

To the Editor of THE LANCET.

SIR,—In your obituary notice of Dr. James Edmunds, I am surprised to see no mention of his two cases of Cæsarean section performed in 1860 and 1876 with success to both mothers and children (one child subsequently died). These two cases aroused a good deal of attention from the circumstance that Dr. Edmunds deliberately refrained from suturing the uterine wound. I suppose he was the only British operator who could say that he had successfully performed Cæsarean section over 50 years ago. His cases are interesting items in the history of Cæsarean section, and I should like again to call attention to them in the pages of the journal in which they were published so long ago as apparently to have escaped the observation of the writer of the obituary notice.[1]

I am, Sir, yours faithfully,

Harley-street, W., Feb. 27th, 1911. HERBERT R. SPENCER.

ADMISSION OF CASES OF MEASLES AND WHOOPING-COUGH TO THE HOSPITALS OF THE METROPOLITAN ASYLUMS BOARD.

To the Editor of THE LANCET.

SIR,—Misunderstanding seems to have arisen in some quarters as to the scope of the Order recently issued by the Local Government Board empowering the Metropolitan Asylums Board to receive into their hospitals cases of measles and whooping-cough. I should therefore be glad if you would kindly allow me to inform medical practitioners and others through your columns that this Board are only authorised to admit poor persons, under 16 years of age, on the order of a relieving officer, or master of a workhouse, or medical superintendent of an infirmary or district sick asylum, or the superintendent of a Poor-law school, accompanied by the certificate of a Poor-law medical officer.

I am, Sir, your obedient servant,

T. DUNCOMBE MANN,
Clerk to the Board.

March 1st, 1911.

THE TREATMENT OF A CASE OF PERNICIOUS ANÆMIA.

To the Editor of THE LANCET.

SIR,—I think the following note may interest some of your readers.

The patient was a man, aged 68 years, belonging to the labouring classes. He was treated with increasing doses of arsenic (by the mouth) for ten days without any sign of improvement. In his own cottage it was difficult to obtain for him the proper amount of fresh air or light. I was fortunate enough to find, close to my own house, a good room where there was plenty of the two latter requisites, and where there was also a housewife who ably seconded me in all my efforts. At this time his blood count, as estimated by the Clinical Research Association, was as follows: Red corpuscles, 3,700,000 per c.mm., or 74 per cent.; white corpuscles, 3000 per c.mm. I now treated him with iron and arsenic hypodermically in the following doses, twice a day, by means of the very convenient B.W. vaporoles—viz., ferr. citrat. virid. 0·05 gm., sodii arsenat. 0·002 gm., aquam ad 1 c.c. In a few days I administered this dose three times a day, and it was well borne. The improvement

[1] See THE LANCET, 1861 vol. i., p. 4; and 1876, vol. ii., p. 313.

in many ways was very great. Formerly, at home, he had practically eaten nothing and cared only to stay in bed. He now ate and drank all that was given him, and was always ready to rise from bed in the afternoon. After six days his blood count was as follows: Red corpuscles, 5,100,000 per c.mm., or 102 per cent.; white corpuscles, 3000 per c.mm. The general improvement was, however, not maintained. He had to return home, and gradually the disease obtained the upper hand.

Pernicious anæmia, of course, shows remarkable remissions, but the rapid improvement in the blood count after the hypodermic treatment seems to hold out some hope for the cases of younger and more vigorous patients, especially if it were begun soon enough. I did not see my patient until the case was at least four months advanced according to history, and quite possibly more.—I am, Sir, yours faithfully,

East Meon, Hants, February, 1911. EDWARD T. JONES.

EXPERIMENTS IN SEWER VENTILATION AT LEICESTER.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Leicester, February, 1911.

MORE than eight years have elapsed since a detailed description was given of an ideal method of ventilating sewers.[1] At that time the system had not gone beyond the theoretical and laboratory stage. The chief fault then found was that it all seemed too good to be true. Now it is possible to speak differently, for the method has been applied during a sufficient number of years and to a large enough district to be judged from the practical results obtained. The object of the system is to prevent the ventilation of sewers in the streets or by soil-pipes on the tops of the houses. Further, greater care is displayed to prevent the intercepting traps placed between houses and sewers becoming small cesspools and to ensure more efficient ventilation of the small branch drains. A vigorous current of air may pass along the straight sewer in the street and yet have but little or no effect on the small tributary drains that come from behind the houses and down passages. The only way to ensure ventilation throughout is to place the inlets or outlets at the extreme ends of the piping. Thus there is the school of sanitary engineering that would have no intercepting trap between the house and the sewer, and by carrying every soil-pipe to the roof of the houses convert them all into sewer ventilators. The air would then have to travel the whole length of the domestic drains to get out, and there would be no neglected corners or branch drains. The ventilation of private drains and public sewers on the roofs of dwelling houses and within a few feet of bedroom windows is not, however, a very satisfactory expedient. To say that the sewer air will be blown away is not a sufficient assurance. When a neighbouring chimney catches fire the odour, and even the smoke, is blown down to the street level. Sometimes the smoke from one chimney is blown down the chimney of another house, invading, much to the surprise of the inhabitants, a room which has no fire; and where the smoke goes the air from the soil-pipes will follow.

Air Needed Per Head in Sewers.

To meet these and many other objections it has been proposed to reverse the process and not allow any air to escape from the soil-pipes; but, on the contrary, to draw air down these pipes to the domestic drains and into the sewers. Here the air would be conveyed to a spot where it could be treated or safely discharged. For this artificial power is necessary, and that constitutes the first and probably the chief objection to the whole system. There is an instinctive dislike to the employment of machinery, based probably on the too frequent experience that machinery is apt to get out of order. It is therefore a good point in favour of a mechanical system if it can be shown that, in the event of a breakdown in the machinery, no very injurious consequences would ensue. Of greater importance than arguments for or against machinery is the dominating fact that in ventilating it is absolutely impossible to ensure a stable result except by the use of machinery. Just as the weather varies, so does natural ventilation vary, and this precisely in the opposite direction to our requirements, giving violent draughts in cold weather and hardly any movement of the air when it is hot and sultry. In dealing with this problem Mr. I. Shone had the advantage of experience as a mining engineer, where the entire ventilation must be artificial, though the breakdown of machinery might involve a serious loss of life. There was no hesitation, therefore, in proposing to base the ventilation of sewers on the revolutions of a fan so as to provide in all weathers exactly the volume of air required to keep the atmosphere within the sewers and drains so fresh as to be uninjurious. What this amount would be has been explained by others writing on this subject. Dr. Letheby had made experiments on the gases engendered by putrid sewage, and the results were that one cubic foot of fresh air every two minutes would suffice to dilute the air escaping from the 30 gallons, or normal daily flow of sewage per inhabitant. In other words, for every inhabitant 30 cubic feet of fresh air must be drawn every hour into the soil-pipe of the house inhabited. Obviously this cannot be done with any degree of certainty except by mechanical appliances. Having obtained this figure it was further possible to calculate that at 3*d.* per Board of Trade electric unit a "Sirocco" fan could be worked so as to provide the requisite amount of air for 1·41*d.* per annum per head of the population.

The Need of Cubic Measurements.

The next point was to devise means to insure that the regulation amount of air should penetrate every soil-pipe, whether near or far from the fan. This seemed more easy to do in theory than in practice, and experience has proved the accuracy of this criticism. Originally a very elaborate inlet was provided, regulated by a vulcanite screw plug which had a small hole pierced in the centre. The size of the hole, in some places barely big enough to let a lead pencil through, varied according to the suction within the pipe, being smaller the nearer the house stood to the extraction fan. These and many other details were given by me in the first description of the system which appeared in these columns, and it is not necessary to go over the same ground again. But we have to see how far the original plan has been modified in actual application. That such experience has now been acquired is due to the enterprising spirit of the highway and sewerage committee of the Leicester Corporation. They determined to apply the system to an area of two and a half acres consisting of streets 40 feet wide with 80 six-roomed houses of the artisan class, and a population of 356 persons, or an average of 4·45 persons per house. The foul water sewers it was proposed to ventilate were 297 yards long. There is a totally separate system for storm and rain water from the surface of the streets and the roof of the houses. To convey the sewage proper there is a 12 inch pipe sewer 202 yards long and two short branches at right angles. The sewers to which the new system is applied discharge into a brick main of 3 by 2 feet, from which they are disconnected. At the junction the pipe sewer is carefully separated from the main sewer by a deep dip trap. The drains that connect the dwellings with the 297 yards of pipe sewers measure in all about 583 yards and are mostly 6 inches in diameter, while the branches to the closets and sink wastes are 4 inches. The smaller half of these have clay puddle joints instead of Portland cement for the joints. A 4 inch diameter cast iron pipe is added to the soil pipe and carried to the roof. It becomes a ventilator, but there are only 27 such ventilators to the 80 houses, in some cases six houses being connected with the one upright pipe ventilator. The cubic capacity of all these house pipes and drains is 304 cubic feet, that of the public sewer 661 cubic feet. so we have to deal with a total of 965 cubic feet, and it would take 6021 gallons to fill this with water. Now when a part of these drains and sewers were submitted to a water test it became apparent that there was a considerable leakage, amounting to seven gallons per minute. Here, then, was the first obstacle, the first great difference between the theory as demonstrated by laboratory experiments and actual application.

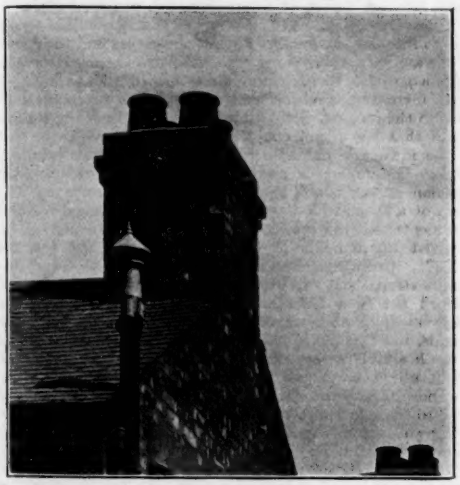
Leakage Upsets all the Calculations.

At the highest point in the district a chamber was constructed under the causeway and here a "Sirocco" fan, 15 inches in diameter, driven by an electric motor capable of producing 700 revolutions per minute, was introduced. On one

[1] See THE LANCET, August 9th, 1902, p. 405.

side the chamber is connected with a flushing manhole and the air is drawn out of the sewer by the fan. On the other side the air thus extracted is forced into a ventilating shaft 40 feet high. When all was completed a five days' test was made. The velocity of the air entering the 27 soil-pipe inlets was measured by anemometers and the result showed that more air was pumped out through the extract ventilating shaft than had entered the sewers by the proper inlets. Therefore the leakage which had enabled some of the water to escape when the water test was applied now allowed some air to penetrate the sewers and drains. Thus the ideal calculations which, as said before, were all too good to be true are now upset. Given absolutely air-tight sewers and drains, with inlets all accurately measured and a fan revolving with mathematical precision, every soil-pipe would have received exactly the number of cubic feet of fresh air needed. But here was an unknown volume of air penetrating from unknown places and upsetting all these precise calculations. The mechanical part alone worked satisfactorily. The fan pumped out of the sewer exactly the right amount of air, only it did not appear that this air came from the farthest as well as the nearest inlets. At these inlets—that is to say, at the top of the 27 soil-pipes which are prolonged to the roofs of the houses—it was found, in some instances, that there was no perceptible current of air. It is true that air must travel at the rate of 30 feet per minute before it has sufficient force to move the anemometer, but the amount entering at a slower rate than this is hardly worth including in any calculation.

FIG. 1.



A cowl, constituting an air-inlet, placed on the top of the soil-pipes. The door-like opening can be seen which is used for introducing the anemometer.

Under the existing circumstances, short of re-laying all the house drains and the sewers in such a manner as to make them absolutely air-tight and keeping them in that condition for ever, a totally new set of calculations had to be made. Nor could any theoretical basis for such a reckoning be found, for no one could tell the extent of the leakages with which it was necessary to deal. Therefore, experiments had to be made with all the air inlets. Obviously much more air must be extracted so as to maintain a current through all the soil-pipes and also carry away what the leakages supplied. The minute and elaborated air inlet was too delicate an instrument for this rougher procedure. After trying many models the present system was adopted. It consists of a cylinder fitting over another cylinder. Both these have vertical apertures or slits, and the outer cylinder can be twisted round. If the apertures are made to fit over each other we have the maximum opening, but by slightly moving the outer cylinder the openings are rendered smaller and smaller till they are closed altogether. This is covered over by an ornamental hood or cowl to keep the rain off (Fig. 1). Underneath there is a commencement of piping which fits on the top of the soil-pipe, and here is the space for a small door large enough to admit a hand holding an anemometer. Thus it is necessary to place a ladder against the wall, to climb up and introduce an anemometer into this aperture. If the record shows that the amount of air descending the soil-pipe is insufficient, then the cylinder above must be turned round so as to enlarge the inlets. This descent of the air will vary from soil-pipe to soil-pipe according to its position and proximity to the extraction fan. Thus there is no rule, but a separate experiment must be made in each instance. This may seem complicated, but the needful procedure shows that the system deals with realities. According to the experiments made and the report of the borough engineer, Mr. E. George Mawbey, M.Inst.C.E., the 27 inlets measured at first only 10,278 square inches, and this might have sufficed had the sewers been absolutely air-tight. The inlets had to be increased to 75,258 square inches, and the six-inch diameter extraction shaft was replaced by a nine-inch pipe. Thus the inlet space was equal to 89 per cent. of the outlet space given by the nine-inch extraction shaft. The working showed that 752 cubic feet of air were discharged per minute by the fan into the extraction shaft; but of this only 325·53 cubic feet, or a little less than half the total volume extracted from the sewers, entered the sewers through the 27 soil-pipe inlets. In these ventilating soil-pipes of four-inch diameter the average velocity of the air was 226·2 feet per minute, representing an admission of 12·02 cubic feet per minute, or 5·23 cubic feet per house per minute, which is more than necessary. Therefore, the fan was utilised to ventilate a neighbouring sewer outside of the area devoted to the experiment. This reduced the volume of air extracted from the sewers and drains of the area to 142 cubic feet per minute, and of these 106·08 cubic feet were admitted through the 27 soil-pipe inlets, giving an average per house of 1·73 cubic feet per minute. This is a magnificent result, for in 24 hours the air within the house soil-pipes and drains is changed 502 times and replaced by air drawn from the outside atmosphere once in three minutes. Within the street sewers the air is changed about 309 times in the 24 hours, or once in four and a half minutes.

The Chemical Test.

The result thus achieved, it must be borne in mind, is absolutely independent of all climatic conditions. The wind may blow or not blow from any point of the compass, the temperature may fluctuate from the extremes of heat or cold, but still pure outer air penetrates the highest point of the soil-pipe, travels down to the lowest, then on to the sewers, bearing away all noxious effluvia and preventing any accumulation or stagnation. The sewage, if foul, is constantly swept over with fresh air; there is not time for mischief to accrue. This is confirmed by chemical analyses. Outside, but close to the area, analyses were first made of the air in the street, and it contained 3·55 parts of carbonic acid gas per 10,000 parts. In the sewer the air contained in the best samples 15·95 and in the worst 24·98 parts of carbonic acid gas per 10,000 parts of air. When, however, the nine-inch extraction shaft was applied and the system in the selected area was in working order the air in the principal street of this area was found to contain 3·18 parts of CO_2 per 10,000, and within the sewers the average throughout the system was 9·59 parts of CO_2 per 10,000 parts. On another occasion the average was only 8·08, and after that it fell to 7·04 parts of CO_2 per 10,000 parts. Thus there can be no doubt but that the sewer atmosphere is purified by this system of ventilation. Finally, if the air from the sewer is discharged in the street, though, of course, at as high a level as possible, it will not prove as injurious as the ordinary sewer airs, which, it has been seen, contain a much larger proportion of carbonic acid gas and whatever other impurities the excessive quantity of this gas may indicate or favour.

The Advantages Secured.

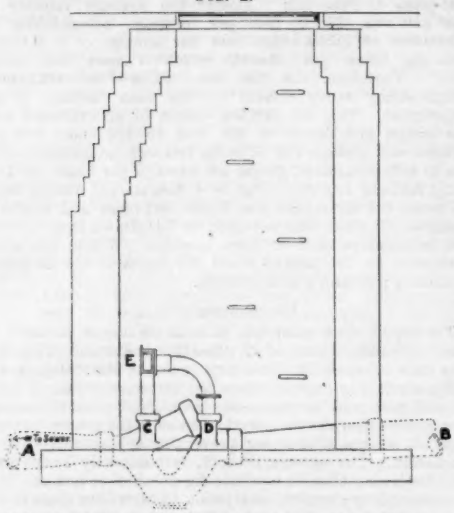
To fully appreciate these advantages it is necessary to bear in mind that at present in most cases the sewer airs travel up from the sewers to the houses, escape by numerous leakages, and are discharged either through grids into the streets or through various ventilating shafts, many placed against houses and near windows. Thus the current is always from the sewer to the street or the dwelling. But with mechanical power to produce a vacuum in the sewers the current is

reversed. Even if the sewers are badly built, if the drain-pipes are insecurely jointed, then it is pure outside air that is drawn through these leakages into the drain or sewer, and not foul air from drain or sewer that ascends and permeates the surrounding soil or dwelling. There remains, however, the old objection that all this is due to a mechanical appliance which may get out of order. If the fan is worked by an electric motor the electric current may be stopped by an accident or by a strike. In that case no more disastrous result would ensue than that of having to revert to the system of ventilation now actually applied in most towns. The inlets would once more become outlets. The worst that might have to be done would be to remove the cowl inlets that are on the top of the soil-pipes so that the latter might more readily become outlets till such time as the ventilating fan could be set in motion and the system re-established.

The Intercepter Trap and other Obstacles.

There is one more consideration. In many places there are intercepting traps between the house drains and the public sewer. How, then, can the air be drawn down the house drains into the sewer without forcing the water seal of these intercepting traps? For this purpose a special intercepter has been invented, and it is applied in one instance at Leicester to show how it works. (Fig. 2.) On

FIG. 2.



Paton-street, Leicester. Plan of chamber containing Messrs. Shone and Cutt's patent intercepting trap. A, Drain between intercepter and sewer. B, Drain from house to intercepter. (Of course any inlet for fresh air purposes into the house-drain B, as would be necessary under the London County Council by-laws, would require further calculations against the admission of the extra air.) C, Shaft for passage of air from house-drain to sewer. D, Shaft for passage of air from house-drain to E, box holding the suspended valve which only permits air to pass from house to sewer.

each side of the water seal there is a small opening where a pipe can be introduced and carried over to the other side of the water seal. Between the two a space is reserved where a valve is suspended in such a manner as to open and let air through from the house to the sewer, but the greater the pressure of air from the sewer towards the house the tighter this valve would be closed. It is very similar to the intercepting trap which was proposed for use in carrying out the drainage scheme for Cairo, and was described with illustrations in these columns of May 8th, 1909 (p. 1350).

For several years now this the Shone system of sewer ventilation has been working in Leicester. No accident has happened. It has given general satisfaction. The chief objection is the cost of the power that must be employed, not necessarily electricity; but all power is more or less expensive. On the other hand, the perfection of the results attained is worth a small outlay, and at the worst the cost is not great. The second objection is that the system cannot be applied like a ready-made suit of clothes. It represents, on the contrary, the highest art yet attained in this direction, and therefore requires to be tried on and fitted carefully, with intelligence and knowledge of the object to be realised. But when was a real scientific problem solved otherwise? The desire for simplicity may be exaggerated. The first sailing boats had very simple sails and rigging, but they did not sail far or quickly. The first sewers were also of very simple construction, but the greater frequency of epidemics in their days did not speak well for their sanitary qualities.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Manchester Hospitals.

THE financial position of the Manchester hospitals is becoming serious enough to cause great anxiety as to the future. The Royal Infirmary, the leading medical charity, "one of the finest infirmaries in the world," as Sir William Cobbett said at the annual meeting of trustees the other day, with its very complete equipment, must live far beyond its income if it is to be used to its full capacity. To meet the expenses of the past year the board of management had "to withdraw £11,944 from unappropriated capital," and, of course, this depletion of capital cannot go on indefinitely. Sir William Cobbett said that energetic action was required to improve the position. One solution was to close 168 beds, so reducing the number to 315, or only about 25 more than the number in the old infirmary. A second was "to pay each deficiency of income as it arose, out of capital." Each of these schemes was so objectionable as to be out of court. Sir William Cobbett said the only proper and reasonable solution was to increase the number of the subscribers and the amount of the annual subscriptions, "as many of the subscribers must be in a position to give more than they did." As he said, a small increase per subscriber would make an enormous difference to the income. Sir William Cobbett had not the slightest doubt that the money could be found, not only for the needs of the infirmary but also for those of the other local hospitals. The report, in addition to other matters, stated the decision of the board to appeal for £2500 for the establishment of a special laboratory for the work of cancer research, and mentioned likewise that the number of persons who had received the benefits of the charity during the year was 67,827. Unfortunately, it may be said, with very little qualification, that all the hospitals in Manchester and Salford are in a more or less similar financial condition. Their medical and surgical work increases by leaps and bounds, but it is not so with the subscriptions. Patients flock to the hospitals in crowds, and the question naturally arises, Ought all these people to be treated gratuitously? The new hospital of the St. Mary's Hospitals, in Oxford-road, close to the infirmary, which has stood empty for some years owing to lack of funds, is to be properly equipped and opened in April next. It will be a great boon to women and children, but if the work is to be well done an increase in the subscriptions of several thousand pounds a year will be required.

Ashton Infirmary Jubilee.

The infirmary of Ashton-under-Lyne is to have its jubilee in the coming spring, and an effort is being made to raise £6000. Of this sum £4000 are required to clear off a debt, and the £2000 will be used for the further equipment of the infirmary. Up to the present over £2000 have been subscribed. In addition to the special appeal of the governors the workpeople's committee has decided to raise £1000 in sixpences—40,000 sixpences—and this fund is rapidly mounting up.

Low Death-rate at Stalybridge.

The Lancashire and Cheshire manufacturing towns do not pretend to be attractive as health resorts; but, as a rule, perhaps their reputation is lower than they deserve. However this may be, Stalybridge has been pluming itself on the last quarterly report of the medical officer of health, which shows that the births were 124 (rate 17·0) and the deaths 106 (rate 14·5). This, said the chairman of the sanitary committee, was the lowest death-rate for some time past, and "was a most marked and gratifying reduction for the winter months," and "knocked on the head" the old saying that a green Christmas meant a fat churchyard. He said

also that there had been a marked decrease during the last year or two in the deaths of young children. He thought the sanitary committee might be proud of this improvement. It is to be hoped that as the knowledge of sanitary matters permeates the lower sections of the community death-rates may still fall.

Appointment for a Manchester Physician.

Dr. E. S. Yonge, assistant physician to the Manchester Hospital for Consumption, has been appointed as the English representative in connexion with the Hay Fever Department of the Scientific Section of the International Hygienic Exhibition to be held at Dresden. Manchester plumes itself to some extent on its connexion with hay fever, as it is said, on what is considered good authority, that Dr. Blackley, a Manchester man, showed in 1873 that the cause of hay fever was the pollen of certain plants, especially of the graminaceæ. But the conditions determining the susceptibility of some and the immunity of others to the action of the pollen remain to be discovered. Perhaps the department at the Dresden Exhibition will throw more light on the subject.

Feb. 28th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Royal Liverpool Country Hospital for the Chronic Diseases of Children.

THERE was a large and influential gathering at the dinner held at the Adelphi Hotel on Feb. 23rd in the interests of the Royal Liverpool Country Hospital, Heswall. The Earl of Derby presided, and among others present were the Countess of Sefton, Sir Thomas Barlow (President of the Royal College of Physicians of London) Sir Donald MacAlister (President of the General Medical Council), Sir Edward and Lady Russell, Sir James and Lady Barr, Sir Benjamin and Lady Johnson, Mr. B. G. A. Moynihan, Dr. W. T. Grenfell, Mr. Harold J. Stiles, Mr. Robert Jones, Dr. Charles J. Macalister, Dr. Dawson Williams, and Dr. A. Bernard (representing THE LANCET). The chairman having given the customary loyal toasts, the Lord Mayor of Liverpool proposed "Success to the Hospital" in a felicitous speech. Sir Thomas Barlow, in supporting the toast, said that there were no more severe critics of the work of physicians and surgeons than the physicians and surgeons themselves. They were conscious of the many limitations of the hospitals, which were not all due to the physicians and surgeons, but some of which arose out of the conditions under which they worked. Owing to the difficulty they had of securing that their patients should remain under their care a sufficient length of time to enable complete cures to be effected, much of their work was merely patchwork, and the results were extremely disappointing to the medical man. Often, however, the collateral results of their work were quite as important as the objects at which they directly aimed. For example, the great crusade which had been conducted against tuberculosis, besides the direct objects, brought many indirect benefits. Everybody in that room, he presumed, now made a practice of sleeping with the bedroom window open, and they were all appreciating the value of the free circulation of fresh air and sunshine. Although he had not paid it a visit until that day, the Royal Liverpool Country Hospital was an undertaking with which he had been familiar for many years. Dr. C. J. Macalister, who, with Mr. Robert Jones, was so conspicuously associated with the work, had confided to him his plans 10 or 12 years ago. One of the commendable features of the hospital was that its objects were clearly defined. Its promoters knew what they wanted to do, and were not attempting too much. They were not attempting to deal with all kinds of diseases, but had specially directed their attention to chronic cases which would require a very long time to effect complete recovery. He had been greatly impressed by the perfect happiness of the children at the hospital, and by the frugal, careful, and business-like way in which the institution was managed; and he felt he could recommend all persons engaged in the work of hospital reform to study its excellent methods. These were the days of municipalisation of everything, and it might be that eventually they would come to the municipalisation of hospitals. Well, he hoped he would never live to see that day. Liverpool, it was true, in regard to its municipal hospitals had a splendid record; all the same, he devoutly trusted that they would never permit such a hospital as they had established at Heswall to become a municipal hospital. In time he hoped that at Heswall they would make developments on educational lines by grafting into the hospital work the teaching of handicrafts and other subjects. The greatest improvements and reforms would always be found to be due to voluntary effort, and therefore he besought them to stand firmly by their voluntary institutions. Mr. Moynihan observed that the scheme of the hospital had been carried through with every circumstance of care, and the skill with which the general plan had been organised was only equalled by the enthusiasm of those interested. The toast of "The Medical Profession," proposed by Sir Edward Russell, was replied to by Sir Donald Macalister and Mr. Stiles. The former alluded to the splendid discipline which was obtained in the study of medicine. Liverpool, he said, had bred many leaders of the medical profession, and this city was now teaching many of her older sisters in medicine, especially with regard to tropical disease and hygiene. The health of the Earl of Derby was drunk on the proposition of Dr. Grenfell of Labrador. Lord Derby acknowledged the toast in a graceful and very amusing speech. The dinner was a most enjoyable one, and a number of ladies were present.

Annual Meeting of Charities.

At the seventy-seventh annual meeting of the trustees of the David Lewis Northern Hospital, held on Jan. 26th, the Lord Mayor presiding, much eulogy was bestowed upon the admirable work performed. Mr. Walter Holland paid a cordial tribute to the services rendered by the honorary medical and surgical staff. The number of in-patients treated during the year was 2467. 17,878 out-patients were attended to, totalling 43,297 reattendances. The second operating theatre was completed during the year.—The annual meeting of the trustees of the Royal Infirmary was held on Feb. 1st, the Earl of Sefton, the President, being in the chair. Mr. Ralph Brocklebank, the chairman of the general committee, in seconding a vote of thanks to the president, expressed the hope that the committee would be able to get the £5000 which the corporation was taking powers to obtain. He felt confident that the citizens would recognise the enormous work done voluntarily by the hospital, and generously assent to the contribution of £5000 by the corporation. Apart from legacies, which for the most part had been invested, the receipts were £16,723 and the expenditure £18,650, resulting in a deficiency of £1900, which brought the debt up to £6793.

Feb. 28th.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol: The Colston Research Fund.

THE funds which the University Colston Society has determined to use for the encouragement of research have been allotted in grants amounting to £624 10*s.* out of a total of £900 available for the purpose. The balance has been carried forward to next year. The grants are of a catholic description, encouraging research in almost every department of the University; those of medical interest include work on the relation between the tonsils and tuberculosis of the cervical lymph glands, research into the chemistry and physiology of certain ferments within the blood in their relation to malignant disease and inflammation, and a further instalment of the work already in progress on the typhoid carrier problem. The bacteriology of diphtheria and the curdling of milk are also to be investigated. These researches will be carried on within the University and supervised by a committee representing the University and the Colston Society.

"The Bristol Nonesuch."

Under this attractive title the University magazine makes its first appearance in a cover of Bristol red adorned with a conventional design representing the lychnis. The true inwardness of the title is revealed by a quotation, at the head of the first page, from Gerard's Herball (published in 1633), "the floure of Bristowe or None-such ..... was called Lychnis, that is a torch or such-like light, cleere, bright and

light-giving." Not only is the name of the magazine taken from this flower, which from the above description is seen to be a most appropriate symbol of the functions of a university periodical, but also the colour, Bristol red, which is that of the University hoods. The magazine is to appear three times a year, at the middle of each term. This first number has for frontispiece a portrait of the treasurer of the University, Mr. George A. Wills, whose generous and timely gift of an athletic ground was referred to recently in these columns. A plan of the ground, with a full description, also appears in the "Nonesuch." Other notable contents are an admirably worded In Memoriam notice of the late Lord Winterstoke, "Proceedings" of the various athletic and other clubs, a paper on Student Life in the Quartier Latin, another on "Camp," and so on. Altogether it is a most promising first number, all the more so because it does not depend for its attractiveness on "special features," but merely on contributions of the type which we may expect in all future issues. The editor is to be congratulated on his vigorous seedling.

Bristol Royal Infirmary.

At the annual meeting of governors held on Feb. 14th a statement of finance and work during 1910 was presented. The ordinary income amounted to £13,714, exclusive of legacies, the addition of which brings the total to £19,100. This includes ordinary subscriptions to the amount of £6062, an increase of £435 over the previous year. The total ordinary expenditure amounted to £17,282, or £119 more than in 1909; to this must be added building alterations and additions amounting to £1057, and investment of certain legacies in corporation stock costing £1215, bringing the total expenditure up to £19,555. This adds £455 to the 1909 deficit, which stood at £3532, the total deficit at the end of 1910 being £3987. The total numbers of in-patients and of out-patients were 4149 and 52,813 respectively; these totals include cases remaining over from the end of 1909, and represent an increase over the work of that year. The daily average of occupied beds was 240 (out of a total of 270), the average stay of each patient was 22 days, and the average cost of each occupied bed was £55 10*s.* An appreciative reference was made to the work of the nursing staff and to the services of the honorary staff. An account of the progress of the new buildings showed that the necessary excavations had been made for the foundations, and that many thousands of tons of stone had been worked. The total cost is estimated at £70,000, of which £35,000 are in hand. A resolution was passed empowering the treasurer "to sell such of the securities of the institution as may from time to time be resolved upon by the committee for the purpose of defraying the outlays upon the works of the new buildings." It is earnestly to be hoped that such a step will never be necessary.

Queen Victoria Jubilee Convalescent Home, Bristol.

The annual report of this most useful institution states that in 1910 a record number of patients, 1983, were admitted. Of these, 687 came from the Royal Infirmary, 670 from the General Hospital, 28 from the Eye Hospital, 74 from the Bristol Dispensary, 19 from the Clifton Dispensary, while 338 were free patients admitted from various sources and 167 were paying patients. The income was £2883 15*s.* 10*d.*, the expenditure £2824 16*s.* 10*d.* It has been possible to allot two more beds each to the General Hospital and to the Royal Infirmary, each institution now having the use of 28 beds. Further, by the munificence of the late Mr. Enoch Hendy two more "free" beds have been endowed. Of the other beds specially allotted, the Eye Hospital and the Clifton Dispensary have one each and the Bristol Dispensary three. During the year the average stay of each patient has been 15 days, and the average increase in weight 3 pounds.

The Winsley Sanatorium.

The sixth annual report of this institution, presented at a recent board meeting by the chairman, Dr. R. Shingleton Smith, was very satisfactory. It showed that the daily average of patients is 65·7, and the total number admitted since the sanatorium was opened in 1904 is 1292. Of these, 85 per cent. have been improved to some extent, and 48·2 per cent. have gone out fit for some work. A linen league has been formed, under the presidency of Lady Hobhouse. The report of the finance committee is even more encouraging, for it shows that the institution is free from debt for the first time in its history, thanks mainly to the late Mrs. Procter Baber's munificent gift of £10,000. A balance remains in hand of £2122 4*s.* 3½*d.*, to be used as the nucleus of a fund for certain proposed extensions. The Manchester Unity of Oddfellows has undertaken the maintenance of two beds, and the total extinction of the mortgage debt has set the institution free from its heavy annual payment of interest on loan. The ordinary income has also increased from £5561 3*s.* 8*d.* in 1909 to £5838 7*s.* 6*d.*

Bristol Medical Dramatic Society.

A very creditable performance of Sir A. W. Pinero's farce, *The Schoolmistress*, has formed the annual outburst of energy for which the Bristol Medical Dramatic Society exists. The piece chosen was eminently suitable, and the cast proved equal to the occasion. The All Saints' Hall was well filled each evening from Feb. 21st to 25th. Mr. W. S. V. Stock as the Hon. Vere Quekett, Mr. J. C. Heaven as Admiral Ranklin, Mrs. F. W. Rogers as Miss Dyatt, and Miss Sylvia Heaven as Miss Hesslerigg are specially worthy of commendation. The proceeds will be devoted to the funds of the University athletic ground.

The Bristol Coronership.

Mr. H. G. Doggett, who has been coroner for Bristol since 1892, has resigned the appointment. His resignation will be regretted by the local members of the medical profession, to whom he was always most kind and courteous. The deputy coroner, a solicitor, is a candidate for the post, and the names of two other members of the legal profession are also mentioned. Up to the present there is only one medical candidate, who is also a barrister.

Bristol Hospital Sunday Fund.

The collections received up to date amount to £1600 9*s.* 7*d.*, and of this sum £1400 have been allotted as follows: Royal Infirmary, £609; General Hospital, £511; Children's Hospital, £189; Eye Hospital, £91, other sums going to various smaller institutions.

The Royal Devon and Exeter Hospital.

The annual meeting of the subscribers of the Royal Devon and Exeter Hospital was held on Feb. 16th. The medical report stated that during 1910 the in-patients numbered 1614, compared with 1585 in 1909. 5014 out-patients were treated, as against 5500 in the previous year. The average cost per occupied bed was £56 16*s.* 4*d.* per annum. The financial statement showed the ordinary income was £10,062, the expenditure £11,129, the deficit being £1067.

The Exeter Dispensary.

The annual meeting of the subscribers of the Exeter Dispensary was held on Feb. 22nd. The medical report stated that during 1910 the number of "recommends" used amounted to 5068, compared with 5003 in 1909. Since the opening of the dispensary in 1818 the patients treated amounted to 337,575. The financial statement showed that there was an adverse balance of £269 on the ordinary income of the year, but it was stated that the invested funds of the charity amounted to about £21,000.

Exeter Sanatorium for Infectious Diseases.

The annual report of the medical officers of the Exeter Sanatorium shows that during 1910, 296 cases were admitted; of these, 217 came from the city of Exeter and 79 from the county of Devon. There were 16 deaths, equal to a rate of 5·45 per 100 cases admitted. In 1909 the admissions were 361.

British Red Cross Society.

At a public meeting held recently at Axminster (Devon) it was decided to form a men's voluntary aid detachment, and Mr. John Neville Blithe Vise, L.R.C.P. Lond., M.R.C.S. Eng., was appointed commandant.

The Care of the Feeble-minded.

At its last meeting the Taunton board of guardians offered the workhouse, with the exception of the infirmary, as a suitable building for the accommodation of pauper idiots, imbeciles, and epileptics for the county of Somerset, and this offer will be conveyed to the various boards of guardians concerned.

Royal West of England Sanatorium, Weston-super-Mare.

The annual meeting of the subscribers to this institution was held on Feb. 18th. The medical report stated that during 1910 the patients admitted numbered 2322; of these 1143 were males and 1179 females. The financial statement

showed that the expenditure amounted to £4020, and that the receipts showed a falling off of £900 compared with the previous year. This decrease is due to the fact that during the past year the committee had admitted no cases of pulmonary tuberculosis, but it is hoped that more subscribers will come forward and that the usefulness of the sanatorium will be maintained.

The Mortuary Accommodation at Falmouth.

At a recent inquest held in Falmouth (Cornwall) the medical man who performed the necropsy complained to the coroner of the state of the mortuary. He stated that there was no water-supply, no proper table, and that the only light which could be obtained was through keeping the door open. He added that there were no towels or means of washing the hands. The coroner said that such a state of affairs was not a credit to Falmouth, and at the request of the jury he decided to draw the attention of the town council to the subject.

Feb. 28th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Association for the Promotion of the Registration of Nurses in Scotland.

AT the annual meeting of the Association for the Promotion of the Registration of Nurses in Scotland, held in the lecture theatre of the Royal Infirmary, Edinburgh, on Feb. 24th, the chair was occupied by Lord Inverclyde, the President of the association, who said that he was glad to acknowledge the increasing interest which nurses were taking in the work of the association. The various reports were unanimously adopted. Resolutions were passed approving the action of the executive during the year and reappointing the officers and executive for the coming year.

Glasgow R.A.M.C. Officers' Dinner.

The annual mess dinner of the officers of the Glasgow units of the Royal Army Medical Corps (Territorial Forces) was held last week. Sir George T. Beatson, K.C.B., Administrative Medical Officer of the Lowland Division, presided, and the company, which numbered over 100, included Surgeon-General W. L. Gubbins, C.B., Director-General of the Army Medical Service. The chairman, in the course of the evening, made a statement regarding the medical service of the Lowland Division. He indicated in the first place that the Territorial Medical Service had been framed on the same lines as that of the Regular Army. It consisted of sanitary and medical establishments of regiments; ambulances in the proportion of three to a division, with the cavalry ambulance for the mounted brigade; sanitary companies where they were thought necessary and water duty men; means for evacuating the sick and wounded from the field units to the general hospitals; general hospitals with staffs of physicians and surgeons from the large civil hospitals in the locality; convalescent homes; and a divisional staff for supervising and coördinating the above formations. As regarded regimental assistance in the Lowland Division, all the units with the exception of two had been provided for, but as each had two medical officers and only one would be called up on mobilisation, they would be quite able to fill up the deficiency. He was glad to say the field ambulances were at full strength in officers and men. They had not yet been called upon to form sanitary companies, but they had the full complement of water duty men, who had done duty during the past two seasons with their respective regimental units. The work of providing voluntary aid detachments for the rapid evacuation of the sick and wounded from the field ambulances to the general hospitals had been enthusiastically taken up in Scotland by the county committees of the Red Cross Society. It was gratifying to know also that the general hospitals were complete. They had obtained the surgical and medical staff and the nurses, and had practically settled upon the buildings, so that within the next ten days, if the consent of the director-general was obtained, they could have in Glasgow and Edinburgh three general hospitals giving 1560 beds in working order within 24 hours. In this connexion he acknowledged they had been met in a very generous and helpful spirit by the Poor-law authorities. Finally, as regarded convalescent homes, they would be arranged for through the Red Cross Society.

Medical Inspection in Aberdeen and Increased Cleanliness of Children.

Dr. G. Rose, medical officer of schools in Aberdeen, reports a marked improvement with regard to cleanliness between the children who applied for enrolment in January, as compared with the condition of those who sought admission in August. Of the 763 children examined one-fifth were found defective, the defects calling for exclusion being in 9 cases ringworm, in 5 impetigo, in 1 itch, in 8 vermin, and in 4 other affections. The expediency of excluding such cases on the first attempt to enter school was thus apparent.

Tuberculosis in Aberdeen.

Dr. Matthew Hay, medical officer of health of Aberdeen, states in his annual report that for the last few years he has been collecting information regarding the prevalence of tuberculosis in Aberdeen. In 1909 there were 181 deaths from pulmonary phthisis, and 89 deaths from other forms of tuberculosis. The mortality rate both from pulmonary and from other forms of tuberculosis was appreciably lower in Aberdeen than in any other of the large towns. In recent years nearly twice as many girls as boys have died from phthisis. Dr. Hay thinks it not unlikely that this is due in part to the more outdoor life led by boys. Under five, boys, more than girls, tend to be phthisical. Dr. Hay suggests that the high mortality from tuberculosis in infancy—whatever be the source of infection—is due to the low vital resistance or immunity characteristic of the first two or three years of child life. He does not desire to be understood as denying that infantile tuberculosis is due in part to bovine infection. The investigations of the English and German commissioners make it practically certain that infected cow's milk is a source of tuberculosis in infants and children; but the chief source, nevertheless, in them, as in adults, is human infection.

Vaccination in Aberdeen: Interesting Figures.

Dr. Hay also furnishes to one of the local papers interesting figures with regard to the vaccination of children in Aberdeen. In 1880, 99 per cent. of the children were successfully vaccinated; in 1890 the figure had fallen to 96 per cent., and in 1900 it was also 96; while in 1906—the year before the passing of the Act—the percentage was 90. In 1907, as a result of the concession to "conscientious objectors," the figure fell to 85 per cent. and in 1908 to 84 per cent., the percentage in 1909 being 85 per cent. In 1907, 2 per cent. of the children were not vaccinated on account of "conscientious objections." In 1908 the percentage was 5·5, and in 1909, 8·4. Since the introduction of the Act there has been a drop of 5 per cent. in the number of successfully vaccinated children in Aberdeen, and compared with 1900 a drop of 10 or 11 per cent.

Diamond Wedding of an Orkney Doctor.

On Feb. 20th Dr. and Mrs. Logie of Isbister, Orkney, celebrated the sixtieth anniversary of their wedding. Dr. Logie, who is in his ninety-first year, was for many years a medical practitioner in Kirkwall.

March 1st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Workhouse Inmates and Old Age Pensions.

WHEN the pauper disqualification for pensions was removed, an old man who had been for years an inmate of the Swinford Workhouse took his discharge, and was awarded an old age pension. He then claimed admission to the infirmary as a paying patient, the cost of maintenance being a few pence less than the weekly pension. The local pensions committee brought the matter before the Local Government Board, which declared the old man entitled to his pension. His example is now being followed in other unions. In Claremorris the guardians have ordered the master of the workhouse to prepare claims for all the old people in the house on condition that they pay for their maintenance. The result should be a considerable relief to the rates, together with a small amount of pocket-money for the old people.

Beri-beri in Galway.

Last week three negroes of the crew of a barque which arrived in Galway from the West Coast of Africa were reported on the sick list. The port medical officer, Dr. W. A. Sandys, and the Local Government Board inspector, Sir J. Acheson McCullagh, diagnosed beri-beri, and the men were removed to the union fever hospital. It is not clear why the patients were not sent to the port isolation hospital. The presence of beri-beri in such an insanitary town as Galway is likely to cause some anxiety.

Qualification for Inspectorship of Lunatics.

Some time ago, in view of an expected vacancy in the office of inspector of lunatics, the claim was made that one of the two inspectors should be a woman. Now it is further suggested that one of them should be a "layman of experience" in business matters. The following resolution was passed last week by the Cork asylum committee:—

Whereas the lunatic asylums are in some degree hospitals for curable patients, but in the main homes for chronic inmates, and their upkeep costs the nation over half a million sterling per annum, and whereas there are extensive buildings, workshops, and machinery, lands, farming stock and implements, workmen of all classes, contractors for the supply of the most varied commodities, large numbers of inmates, whose work can be applied reproductively, and other important concerns of a purely business nature, we are strongly of opinon that one of the inspectors of lunatics should be an expert in mental diseases and that the other should be a layman; and that in the interests of the sound and economic working of asylums we respectfully request the Lord Lieutenant to appoint to the post of second inspector, now about to become vacant, a layman of much business ability and experience, of strong grasp of finance, and of great power of organisation, and that copies of this resolution be forwarded to the asylum committees of Ireland.

Visit of H.R.H. the Princess Christian to a Dublin Hospital.

H.R.H. the Princess Christian visited last week the Royal City of Dublin Hospital. Her Royal Highness has continuously manifested her interest in this institution since she laid the foundation-stone of its nurses' home in 1900.

How Dublin's Poor Live.

At the annual dinner of the Royal Institute of Architects held in Dublin on Feb. 25th, the Lord Lieutenant said that the last census showed that one-fourth of the entire population of Dublin lived in one-roomed tenements, and more than 8 out of every 100 tenements of all kinds were one-room tenements having five or more occupants. This proportion showed twice as many such tenements as in Glasgow, compared with the population of that city, nearly four times as many as in Edinburgh, and 32 times as many as in Liverpool. The excess of such tenements as compared with Belfast was even greater, and still more so as compared with Manchester, where such one-room tenements were only a small fraction of the whole. Again, if they took the number of people who lived in one-room tenements (with five or more occupants) they found that in Dublin the number was 1061 out of every 10,000 of the population; in Glasgow 524, Edinburgh 233, London 70, Liverpool 24, Belfast 10, and Manchester 5. His Excellency quoted Sir Charles Cameron, medical officer of health of Dublin, as follows: "It is the large proportion of the one- and two-room tenements in Dublin which reacts so injuriously on the death-rate of the whole population." Lord Aberdeen spoke of the moral effects of life in such conditions, and said the marvel was that there was not a great deal more vice and crime. He strongly urged the providing of healthful dwellings for the people.

Londonderry Infirmary.

Mr. Walter Bernard, physician to the Londonderry Infirmary, has felt called upon to resign his position, owing to failing health. It has been decided to call a special meeting to discuss the terms of appointment of the honorary medical staff. In an institution in which it was reported that on Feb. 21st there were 56 in-patients as well as a good-sized extern department, there is room for physicians, surgeons, and specialists.

Death of Mr. William Leatham, M.A. T.C.D., L.R.C.S. Irel., J.P.

Mr. William Leatham, one of the oldest and best-known medical practitioners in County Tyrone, died at his residence, Lisdhu, Dungannon, on Feb. 20th, at the advanced age of 73 years. Mr. Leatham was an M.A. of Trinity College, Dublin, and in 1860 became an L.R.C.S. Irel. He practised for 40 years in the Coalisland district, where, until a few years ago, he was dispensary medical officer. He was medical attendant to the Royal Irish Constabulary and also a certifying factory surgeon. During a long professional career Mr. Leatham enjoyed very fully the confidence and esteem of all classes and creeds.

Diphtheria in Rathfriland.

An epidemic of diphtheria has broken out in Rathfriland, County Down, and the surrounding district. The public schools have all been closed. Several cases have been sent to Newry Hospital, and the authorities are doing everything to grapple with the serious situation that has developed.

The Samaritan Hospital, Belfast.

The medical report presented at the annual meeting of the Samaritan Hospital, Belfast, on Feb. 27th, showed that during the past year there were 589 extern and 245 intern patients. Of these 222 required surgical operation, 79 of them being major operations. The in-patients and operations performed were more numerous than in any previous year. Financially the amount of debt at the end of the year was close on £470.

Feb. 28th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Fracture of the Wrist.

AT a meeting of the Academy of Medicine held on Feb. 14th M. Lucas-Championnière presented a memoir by M. Marbaix giving details of the treatment of a number of cases of fracture of the wrist. In this memoir M. Marbaix showed the advantages of massage and immediate mobilisation which he had practised in the most thorough manner. He said that after immobilisation of the injured part in the orthodox plaster apparatus the average interval before the patient returned to work was 200 days, but this period was reduced to 40 days when massage and mobilisation were employed.

The Teaching of "Puericulture."

At the same meeting M. Pinard made an important communication on the subject of puericulture, and as a type of this means of contributing to the preservation of the race he instanced the Pouponnière, an admirable institution at Porchefontaine, most ably conducted by Madame Veil-Picard and Dr. Raimondi. Single young women who had become mothers were received there with their infants and were provided with a home in return for the services which they gave as wet nurses in the institution. The premises included an infirmary and a model cowhouse, in which the cows were managed so that their milk could be used without being boiled. Among 1946 infants admitted during the last ten years there had been only 54 deaths. Opportunities for the teaching of puericulture are provided. At Porchefontaine the pupils of the normal school of Versailles and those of Sèvres receive practical instruction. M. Pinard was of opinion that in every town in France where there was a normal school for girls there ought to be an institution for puericulture in connexion with it.

The Mortality of Adults in France.

The death-rate commission, which is officially subordinate to the Ministry of the Interior and has for its president Professor Lannelongue, a member of the Senate, has adopted the conclusions contained in the report by Professor Lannelongue and Dr. A. J. Martin on the mortality of adults in France. After pointing out that this mortality is steadily declining in France, the report states that this decline is due to the increased attention paid to public hygiene, to the sanitation of towns and houses, and to the personal care of health. The mortality due to transmissible and preventable diseases is continually becoming less, with the single exception that the mortality from tuberculosis either remains stationary or even increases a little, and is responsible for one-fifth, and sometimes even for one-fourth of the total mortality. It is, therefore, in the opinion of the commission, urgently necessary to take all requisite measures for reducing this serious danger to life. For this purpose endeavours should be made to stop the progress of alcoholism, and to encourage whatever tends to the prevention of tuberculosis, including precautionary measures due to individual initiative. It is especially necessary that tuberculous disease should be recognised at the first appearance of the symptoms. The patients in this early stage should receive appropriate treatment, should be prevented from becoming a danger to others, and should have their

necessities provided for as long as they required to be kept under observation.

Leprosy.

A commission was some time ago appointed by the Société de Pathologie Exotique for the purpose of reporting on the prevention of leprosy in France. The report has now been presented, and recommends (1) the inclusion of leprosy among the diseases which are compulsorily notifiable in France; (2) the maintenance of a discreet supervision over lepers in order that infected children may be prevented from attending the ordinary schools and adults prevented from following certain occupations; (3) the hospital treatment of leprous beggars and destitute persons; (4) the encouragement of private sanatoriums; and (5) diplomatic arrangements with countries where leprosy prevails in order to prevent the migration of foreign lepers into France.

The Prevention of Plague.

An international sanitary conference will be held in Paris next May. In order to facilitate its proceedings the subjects of discussion will be arranged by the permanent committee of the international office of public hygiene, and as soon as the committee has considered these questions its conclusions will be communicated to all the governments invited to take part in the conference.

Action for Damages against Medical Men.

A man who had had his face, arms, scalp, and back completely covered with tattoo marks at last became anxious to have them removed and for this purpose he sought advice at the Hôpital Beaujon. Dr. Bazy of that hospital recommended treatment by air heated to a temperature of 800° C. and referred the applicant to Dr. Vignat, who undertook the case and applied the treatment successfully as regards the man's face. On the fingers being afterwards subjected to a similar process the man alleged that the hot-air treatment caused stiffness of his finger-joints and brought an action against Dr. Bazy and Dr. Vignat claiming 6000 francs as damages. These gentlemen, however, cited the man before the *tribunal des référés* on the ground that it was necessary to have him immediately examined by a surgical expert because he was keeping his fingers perfectly immoveable and this might in course of time have the effect of causing stiffness of their joints. They also maintained that it would be useful to have precise information as to the condition of the man's fingers from the present time until the date of the trial.

Attempted Simulation of Pyrexia.

For several months past much interest has been aroused in France by the trial of Dr. Brengues, who is accused of having murdered his brother-in-law, an astronomer, in order that he might inherit the property of the deceased. At the present time the case is under consideration by the assize court of Nice. Dr. Brengues having represented that he was in bad health three medical experts were appointed to investigate his symptoms. After hearing the statements of the accused, who said that he suffered from several serious disorders, the experts made a preliminary examination and went away, directing the chief warder to take the temperature of the accused at 6 P.M. When this time arrived the warder telephoned to one of the experts stating that after he had placed the thermometer in position he went away for a few moments, and on his return was astonished to find that a prisoner who shared the cell with Dr. Brengues was warming the thermometer over the gas jet, and that it showed a temperature of 42·8° C. The expert then proceeded to the prison, where he noted that the pulse of the accused was regular and making 80 beats per minute; the thermometer in the axilla showed a temperature of 38° C., whilst another one placed in the rectum showed 37·2°. Both thermometers were then placed in the rectum, when the one registered 37·2° and the other 37·4°. The case was therefore an instance of attempted malingering.

Monument to Professor Cornil.

A monument in memory of Professor Cornil will be unveiled on Sunday, March 5th, at 10.30 A.M., at the École Pratique of the Paris Faculty of Medicine. The President of the Republic will preside at the ceremony. The monument has a fine appearance, and is the work of Dr. Paul Richer, a member of the Academy of the Fine Arts and of the Academy of Medicine.

Feb. 27th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Remarkable Cases of Swallowing Foreign Bodies.

A SUICIDAL inmate of a lunatic asylum in Vienna swallowed several spoons and forks, which he had purposely broken across, but singularly enough no appreciable ill effects were produced. He was subsequently discharged and was able to do hard work as a labourer for two months, after which he began to suffer from hæmorrhage from the mouth. This was at first supposed to be of pulmonary origin, but when an examination by a surgeon proved that the blood came from the stomach he was admitted into a surgical ward and operated upon by Dr. Rotheissen, who showed the case at a meeting of the Gesellschaft der Aerzte. Before the operation no foreign body was palpable in the abdomen when the patient was in the reclining posture. The X rays showed near the vertebral column a dark shadow which sank into the pelvic space when the man was standing, and the foreign bodies could then be felt by the hands. When the abdomen was opened the stomach was found to be hypertrophied; the pyloric part was open. A small incision made it possible to extract 14 broken spoons and their handles. There was no gross lesion of the mucous membranes except a condition of chronic catarrh, and the recovery was uneventful. In the case of another patient on whom an operation was performed a short time ago the contents of the stomach had led to perforation of its walls causing peritonitis. The operation revealed the presence of 42 nails which he had swallowed during an attack of melancholia; one of them had worked its way through the wall of the pyloric part, injuring the serosa, whilst the others had already passed the pylorus and lay in the duodenum at a place which was very difficult of access, and as the patient seemed to be in a desperate condition they were left undisturbed and eventually passed out by the anus. It was afterwards ascertained that a month previously the patient had swallowed 10 tacks, which also had passed through his bowels without producing any harm. Both patients are at present doing well.

Precautions against Plague: End of the Cholera Quarantine.

The westward progress of plague along the Siberian railway and the possibility of its conveyance by shipping were discussed at the last meeting of the Austrian chief Board of Health (Oberste Sanitätsrath). At present there is no cause for alarm in this country, but the medical officers of health on the eastern frontier as well as in the Adriatic ports have nevertheless been requested to use the utmost vigilance. A quarantine of eight days has been ordered for all arrivals from suspected districts. There was an outbreak of plague in Vienna some ten years ago, when a plate culture containing plague bacilli was scattered in the midst of several persons in one of the laboratories of the General Hospital. At that time Dr. Müller, who had been one of the members of the Austrian plague commission sent to India for the purpose of studying the disease, volunteered to attend the infected persons, two of whom died, as well as Dr. Müller himself from the same cause, but the outbreak spread no further. This prompt success was due to the adoption of most stringent measures, and there is every reason to hope that any fresh invasion could be similarly overcome. As there have been no cases of cholera in Hungary for more than two months, Austria and Hungary have now been officially declared to be free from this disease, and no special precautions are being taken with regard to it.

Death of Professor Gustav von Braun.

Some days ago Professor Gustav von Braun, the senior of the Vienna gynæcologists, died at the ripe age of 82 years after a short illness. He was really a self-made man, who by sheer force of talent had attained a most successful practice among the upper class of the population, whilst he at the same time filled until 10 years ago the post of director of the obstetric clinic for midwives in Vienna. He was one of the first to recognise the importance of Semmelweis's observations relative to puerperal infection, and when the era of antisepsis and asepsis arrived he was quick to adopt these new departures as soon as their utility was proved. It is in great part due to him that the Austrian midwives are capable of using modern methods in the treatment of

parturient women, for he organised the teaching of midwives in a most efficient manner. He worked a good deal on certain problems connected with his specialty, especially on anomalies of the pelvis, on extra-uterine pregnancy, and on obstetric surgery. When circumstances required he used to deliver lectures and hold classes in the French, English, and Italian languages for the convenience of the numerous foreign students who come to the University of Vienna.

Death of Professor Escherich.

Professor Escherich, the celebrated specialist for diseases of children, died on Feb. 15th, after an illness of only two days. While visiting the wards of his clinic the day before his death he mentioned that he did not feel quite in his usual health. Suddenly he began to speak in different languages, his mind wandered, and he had to be conveyed to his home, where he died the next day. An acute exacerbation of arterio-sclerosis from which he suffered was brought on by exertion and abruptly terminated his brilliant career. He was born 54 years ago, and after graduating at a comparatively early age he was soon attracted to the study of children's diseases. While still a young man he obtained a high reputation as a keen observer and an excellent teacher; his first appointment as an independent director of a clinic was in Munich, whence he was called to Graz. In 1902, when Professor von Widerhofer died, he was appointed professor of pædiatrics in Vienna. Here he soon created a special school, which energetically followed up the problems of combating the mortality of infants by scientific and social work. The chemistry and bacteriology of early life were the leading features of the clinical research carried on under his supervision, and numerous contributions to science have originated or were inspired in his clinic, the staff of which always included proficients in various departments of investigation. Professor Escherich's chief published works were "The Bacteria of the Intestines of the Infant," "Diphtheria and Serotherapeutics," and "Tetania."

Feb. 27th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Annual Dinner of McGill Medical Students.

AT the annual dinner of the McGill medical students, held in Montreal on the evening of Feb. 2nd, Dr. K. Tait McKenzie, professor of physical education at the University of Pennsylvania, Philadelphia, U.S.A., was the guest of honour. Mr. Roy McGibbon, president of the dinner committee, occupied the chair, and seated at the head table were Principal Peterson, Dean F. J. Shepherd, Registrar J. W. Scane, Judge Archibald, Professor H. S. Birkett, Professor W. F. Hamilton, Professor A. E. Garrow, Professor J. C. Cameron, Professor Nichols, and Dr. Andrew Macphail. Representatives from Toronto, Queen's (Kingston), and Laval (Quebec) failed to be present, being snow-bound on account of the severe blizzard raging that day. Dr. Tait McKenzie spoke of the physical education of the city dweller and said that the whole ground of medical teaching was changing with the life of the people. To-day there are 60 per cent. of the civilised people living in cities. Physical education is the study of the most vital problem facing modern nations. It was the constructive side of medicine. A letter was read at the gathering which went to show that $10,000 had been subscribed as a memorial fund to the late Dr. Arthur A. Browne, and that the committee in charge of it had decided to found a scholarship at McGill to be known as the Arthur A. Browne Scholarship. Dr. T. G. Roddick wrote that he was unable to be present, but sent the students encouraging news with regard to Dominion registration. He confidently expected that in the course of a few days the Canadian Parliament would have passed the amendment to the Canada Medical Act of 1902, which, when ratified by the nine provincial legislatures, would give Canadian students of medicine the right on graduation to commence practice in any province they pleased without further examination. This amendment has recently been considered by a special committee of the House of Commons, but it did not pass unanimously in its entirety, as representatives from the province of Saskatchewan, where there is no university and no medical school, objected to the university representation clause.

Notre Dame Hospital, Montreal.

During the year 1910 over 2500 patients were admitted to Notre Dame Hospital, Montreal; in 1909 there were 2215. Out of the 2500 admitted over 2000 were discharged absolutely cured. During the whole year there were 104 deaths in the institution. Some were left in the institution at the end of the year and the balance went out incurable. The ambulance calls numbered 1056. The month of December was the heaviest month. There were 21 deaths, 15 of which occurred within one hour after admission. A judgment has recently been rendered in Montreal of interest to the medical profession in connexion with this hospital. The complainant was a man whose wife had been admitted to the hospital with an injured ankle. When examined the injury was found to be a sprain. After a few days' rest in bed she was ordered to get up, which she did under protest and then fell upon the hospital floor, this time sustaining a fracture of the wrist. Action was entered for $625 damages on the ground that the woman had received additional injury in the hospital through carelessness of her attendants. The court held that the attendants had done all that was scientifically possible for the woman and judgment was rendered for the defendants.

Poliomyelitis Infection from Canada.

Dr. Eugene H. Porter, Commissioner of Health for New York State, is arranging with the Canadian authorities for an interchange of information and an agreement as to quarantine regarding poliomyelitis between the Province of Ontario and the State of New York. The disease has been prevalent to some extent along the Niagara frontier.

Reciprocity in Medical Teaching.

The medical faculties of Toronto and McGill Universities have entered into an agreement to accept each other's examinations up to and including that of the fifth year. When any student leaves either university with a clean bill of health, both academic and moral, he shall be awarded the same standing in either university without further examination. He could spend one year in Toronto, the second in McGill, and so forth. This signifies that for the future the two medical faculties will act as one in the matter of medical standards. It will tend towards uniformity in standards of matriculation, curricula, and examinations. If these two leading universities be supported by the other universities of Canada in this agreement there will be a tendency to revision and elevation of medical standards all over the Dominion.

Caisson Disease in Canada.

Dr. P. Conroy of Charlottetown, P.E.I., who for three years was medical attendant upon several hundred caisson workers employed in constructing a large bridge near or at Charlottetown, gained thereby an opportunity to study caisson disease at first hand. An interesting point elicited by Dr. Conroy, and duly chronicled in a paper in the *Maritime Medical News*, was that the workers themselves by their own practical experience had learned the best treatment. When the disease develops in a workman his comrades quickly take charge of him. He is immediately placed in a hot bath, rubbed vigorously, and then kept absolutely quiet in a hot room for several hours until convalescent. Dr. Conroy suggests that the disease is due to a toxæmia, and that its treatment by the workmen produces free perspiration as a safeguard.

Medical Inspection of Schools in Canada.

Medical inspection of schools in Canada has been in vogue to some extent for four or five years in Montreal, Halifax, Hamilton, Ottawa, Vancouver, and latterly in Toronto. Last year the Toronto Board of Education gave it a tentative trial, employing two inspectors and appropriating $2500 for the work. The work this year is to be on a more extended scale in Toronto. A chief medical inspector of schools has just been appointed in the person of Dr. E. W. Struthers at a salary of $2500 per annum. He is to have eight medical inspectors and a corps of nurses numbering 17 and a chief nurse. The total appropriation set apart for this work will reach $24,000. The Board of Education decided to retain control over the inspection work and not to delegate it to the medical health department of the city. In Halifax one general inspector and an oculist are employed with a few nurses. In Montreal the work is under the health department, with 17 medical inspectors at a yearly salary of $1200.

Vancouver works under a system responsible to its Board of Education.

Stamping Out the Drug Habit in Canada.

The Federal Government is considering legislation looking to control and to forbid under severe penalties the importation, manufacture, sale, or use of opium, morphine, and cocaine for other than scientific medicinal purposes. Other habit-forming drugs will probably be included in the measure. 12 to 15 per cent. of all the young people in the penitentiaries of Canada attribute their downfall to drugs, and it is authoritatively stated by the Dominion parole officer that, if a complete census were made, fully 25 per cent. would be more correct. During the last six months the police of Montreal have made 125 arrests of persons selling or using cocaine. The measure is strongly supported by the Canadian Pharmaceutical Association. The Quebec Government is also moving along similar lines. The Dominion Parliament will also enact legislation looking to the prohibition of the use of white phosphorus in the manufacture of match-making.

New Board of Health for Ontario.

The Ontario Government has just appointed a new board of health for that province. Dr. Adam H. Wright, Toronto, has been appointed chairman, to succeed Dr. Charles Sheard, whose term of office expired Dec. 31st, 1910. The other members of the board will be Dr. D. B. Bentley, Sarnia; Dr. James Roberts, Hamilton; Dr. George Clinton, Belleville; Dr. W. H. Howey, Sudbury; and Dr. J. W. S. McCullough, Toronto, the only member of the old board to be appointed. Dr. McCullough, who succeeded Dr. Charles A. Hodgetts a few months ago, will be chief health officer for the Province and secretary of the board.

Toronto University and Medical Licences in Ontario.

Dean C. K. Clarke, M.D., of the medical department of the University of Toronto, has thrown a bombshell into the camp of the Ontario Medical Council. In the report of the Board of Governors of the University to the Ontario Government there are set out the reasons, according to Dr. Clarke, why the Ontario Government should take away from the Ontario Medical Council the right to fix standards of medical matriculation, curricula, and to conduct examinations. He calls for a revision of the Ontario Medical Act whereby a student in medicine upon graduation would receive at the same time he receives his degree his licence to practise in the Province of Ontario without further examination by the Ontario Medical Council. Dr. Clarke claims that the Council hampers the University in promoting better educational facilities and setting higher standards for matriculation and examinations. He considers that it is not the function of the Council to set standards, conduct examinations, but to protect the general public from quacks and dishonourable and criminal practitioners.

Reorganising Toronto's Health Department.

Dr. Charles J. C. Hastings, recently appointed medical health officer of Toronto, has a comprehensive scheme of reorganisation of the health department of Toronto. Dr. Hastings estimates the expenditure for his department for 1911 at $159,000, which is $67,000 more than was spent in 1910. Mr. George Nasmith has been placed at the head of the laboratory and Dr. F. J. Hazlewood is to superintend the isolation hospital.

Manitoba Medical College.

The Faculty of the Medical College of Manitoba have decided to withdraw their offer of turning the college over to the University of Manitoba as a medical department. It is stated that this could not be carried out until the College first got the consent of the general profession in Manitoba, as the college only holds the property in trust.

Toronto, Feb. 16th.

UNITED SERVICES MEDICAL SOCIETY.—The next meeting of the above-named society will be held at the Royal Army Medical College, Grosvenor-road, S.W., on Wednesday, March 8th, at 5 P.M., when papers will be read by Lieutenant-Colonel P. J. Freyer, I.M.S. (retired), on "The Symptoms and Modern Methods of Diagnosis of Stone in the Kidney, Ureter and Bladder," and by Colonel H. Hathaway, A.M.S., on "Ambulance Transport."

MEDICAL INSPECTION AND TREATMENT OF LONDON SCHOOL CHILDREN.

Proposals for Reorganisation.

THE report to the Education Committee of the County Council on the re-organisation of medical inspection and treatment in London, referred to in a leading article in THE LANCET last week (p. 514) was duly presented by the Children's Care Subcommittee at the meeting on Feb. 22nd. Owing, however, to pressure of business the consideration of the matter was adjourned until March 1st. As our article indicated, the report of the subcommittee took the form of an elaborate argument in favour of placing the work at present under the direction of the medical officer for education, Dr. J. Kerr, definitely under the supervision of the education officer, Mr. R. Blair.

The subcommittee, first defining the present position, pointed out that the Acts under which medical inspection and treatment were carried out were administered by the Board of Education and the duties the Acts enforced or legalised were imposed on the Council as local education authority. The Council's medical work was carried out by officers whose entire duties were concerned with the administration of education. As regards medical inspection, the whole of the work—administrative as well as professional—was carried out by Dr. Kerr. He was technically an officer in the public health department of which the chief officer was Sir Shirley Murphy, but Dr. Kerr had enjoyed a large measure of independence and had had delegated to him expressly by the Council the exercise of the duties of school medical officer under the regulations of the Board of Education. The arrangements for medical treatment were carried out by the education officer, Mr. Blair, as part of the general machinery of educational administration. As soon as a school medical officer, after inspection of a school, had reported that certain children required treatment the necessary action for securing it was taken (1) by the children's care committees of the different schools, and (2) by the central office staff of the education officer's department, who made appointments for the children at the hospitals and medical treatment centres and saw to it that the arrangements were carried out in accordance with the conditions laid down in the agreements.

Need for Unification.

This division of the work between two different departments of the education service had had an injurious effect, in the opinion of the subcommittee, upon the working of the Council's scheme. It was of the greatest importance that the arrangements for medical treatment should be closely associated with those for medical inspection, and from the experience gained during the past year the subcommittee had come to the conclusion that the whole of the administration should be entrusted to one department. This unification might be effected in one of two ways—

(1) The whole of the work might be entrusted to Sir Shirley Murphy, Dr. Kerr being definitely placed under his control and made responsible to him both on the professional and the administrative side.

(2) The whole of the work might be placed under the control of Mr. Blair, the education officer, Dr. Kerr being placed in his department and made responsible to him on the administrative side, while retaining an independent position so far as expert medical advice was concerned.

In support of the view that the work should be placed under the Council's medical officer of health, the memorandum of the Board of Education, dated Nov. 22nd, 1907, might be quoted. It stated that the medical inspection and treatment of school children should be carried out in intimate conjunction with the public health authorities under the direct supervision of the medical officer of health of the authority which appointed the education committee. The policy suggested by the Board could be carried out readily in county boroughs where the medical officer of health was under the jurisdiction of the same authority as that which was responsible for education, but there would be great difficulty in applying the policy to London, where there were 29 officers of health responsible to 29 different authorities, while education was under the control of one central authority. True, the County Council had been entrusted by Parliament with powers of supervision and control over certain general matters of public health which did not fall within the scope of the borough

councils, but so far as matters of public health were concerned which were most closely related to medical inspection and treatment of school children, it was the medical officers of health of the metropolitan boroughs whose coöperation was most required. No doubt it was mainly for this reason that the circulars of the Board of Education dealing with this matter made no specific reference to the problem of London, while in the Board's letter of Jan. 14th, 1911 (not yet published by the Council) special attention was drawn to the desirability of bringing the Council's school medical service into closer relation with general educational administration. A second reason put forward for placing the whole of the arrangements for medical inspection and treatment under the control of the Council's medical officer of health was that hitherto it had been the practice of the Council to provide that all work, whether administrative or professional, which was involved in the exercise of a particular profession should be placed under the direction of the professional officer concerned.

School Medical Work closely Associated with Education.

The subcommittee pointed out, however, that from the beginning school medical work had been closely associated with the general work of education, and proceeded to amplify this aspect of the case. The Acts under which the work was performed by the Council, as stated above, were education Acts, their objects being to secure that the children should be in a fit condition of health to profit by the education given, and also that the conditions of school environment, including such matters as sites, buildings, desks, and curriculum, should be arranged with due regard to the physical development of the children. The central administration had been entrusted, not to the department which dealt with general questions of public health (the Local Government Board), but to the department which dealt with educational administration (the Board of Education). In order to give effect to the Act of 1907 an expert medical staff had been appointed by the Board of Education to exercise general supervision over the school medical work of local authorities, and this medical staff formed part of the administrative machinery of the Board. School medical work in London had grown to its present stage in close association with the general activities of the schools and the general machinery of educational administration. The teachers played an important part in making preliminary observations on the children to be submitted to medical inspection, in giving information to school doctors and nurses, and in influencing parents to pay proper attention to the children's needs. The school medical work was also bound up very closely with the work of the local care committees which worked in conjunction with the school attendance officers, the organisers of the school meals, and others. The central care subcommittee was just as much identified with the arrangements for medical treatment as with other aspects of the physical welfare of children. From the moment when Parliament decided that inspection and treatment were to be regarded as part of the work of education, the administration of school medical work became closely linked with the general administration of education. The prominence at the moment of relief functions (provision of meals and medical treatment) tended to obscure the real nature of the organisation, but the work in all its phases was educational. School medical work was a part of this whole, and in the opinion of the subcommittee could not be removed without serious injury to the remainder.

The Subcommittee's Conclusions.

The subcommittee had arrived at the conclusion that the only satisfactory solution was to place the whole of the school medical work in close organic connexion with the general administration of education. The efficient carrying out of medical inspection and the arrangements for medical treatment involved a large amount of detailed work which was administrative rather than professional, such as making appointments for doctors, nurses, and children at school and at hospitals, the general organisation, the collection of charges to parents, and the filing of records. Such duties did not require expert medical knowledge, and it would be a wasteful policy to allow the time of medical men, appointed for their expert qualifications, to be occupied in superintending all the many administrative details necessary to the successful organisation of school medical work in an area as large as London. Moreover, if it were decided to detach the school medical work from the ordinary educational administration it would probably be found necessary to appoint additional organisers and assistants to carry out the medical work under the medical officer of health, leaving the present staff to carry out such duties as related to the welfare of children—the provision of meals, play centres, and after-care. Such division of work would be both unsatisfactory and uneconomical. The subcommittee therefore recommended:—

That the organisation and administration of medical inspection and treatment, including the work hitherto performed under the direction of the medical officer (education), be definitely incorporated in the Council's educational system, and placed in future under the control of the education officer, who shall be responsible to the Council, provided that the medical officer (education) shall retain his existing titles, shall have the right of access to the subcommittees of the Education Committee, and preserve his freedom and initiative as to expert advice, opinion, and investigation, and be entitled to submit reports over his own signature.

An amendment to substitute the name of the medical officer of the Council for that of the education officer led to an interesting debate, and was lost. A second amendment aimed at making the medical officer for education purposes a chief officer responsible direct to the Council. This was proposed by Mr. E. Gray, the chairman of the General Purposes Committee of the Council, "to test the feeling of the committee," and resulted in equality of voting, the chairman of the Education Committee, Mr. E. A. H. Jay, not exercising his casting vote. In the event the recommendation of the subcommittee was carried, and now awaits the confirmation of the Council.

Progress made with Medical Inspection.

A return presented to the committee with regard to medical inspection showed that during the week ended Feb. 4th 99 medical men had visited 145 schools and examined 11,400 children, of whom 3657 were found to require treatment for various ailments. No account was taken of defective dentition. Of the 3657 children 2293 could be provided with treatment under the Council's scheme. The work of medical inspection was shown to be somewhat in advance, as regards completeness, of the requirements of the Board of Education. To comply with those requirements 74,800 should have been examined on Feb. 4th; 78,998 had actually been examined.

A Further Dental Treatment Experiment.

As another step in the direction of providing dental treatment the Education Committee on Feb. 22nd decided to assist the authorities of the St. George's Dispensary, Surrey-row, Blackfriars, to resume the dental treatment service discontinued recently owing to lack of funds. Quoting the statement of the medical officer to the Board of Education that the critical time of attack on the teeth is the six-year molar period, from 6 to 8 years of age, the subcommittee which brought forward the recommendation advised that experience should be obtained at the dispensary of dealing with children of these ages as well as of other ages. In the experiments at Poplar and Deptford the age-group (8–9) was selected because children of that age were examined in the course of ordinary medical inspection. The selection of another age-period would necessitate the employment of an inspecting dentist on one half-day a week. The committee decided to set aside £400 in respect of the treatment of 1300 cases between May 1st and Dec. 31st next.

EDINBURGH UNIVERSITY CLUB.—The annual banquet of the Edinburgh University Club in London was held on Thursday, Feb. 23rd, at the Criterion Restaurant, Sir David Ferrier being in the chair. There were only two speeches, "The Prosperity of the Club" being proposed by the chairman, and "The Chairman" being proposed by Sir Lauder Brunton. Sir Lauder Brunton's dissertation on Sir David Ferrier's distinguished career was listened to with close attention by a numerous assemblage of guests and members of the club, for the value of his pioneer work in neurology was very clearly brought out. Sir David Ferrier, in his reply, claimed the widest recognition for the labours of Dr. Hughlings Jackson, a view which the assembled company endorsed heartily.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—W. J. Gibson (Sections I. and II.), London Hospital.
Medicine.—M. J. A. des Ligneris (Sections I. and II.), Berne; C. B Hawthorne (Sections I. and II.), Cambridge and Birmingham; J. B. Holmes (Section I.), Manchester; J. C. Johnson (Sections I. and II.), Middlesex Hospital; and H. T. Roberts (Section II.), St. Mary's Hospital.
Forensic Medicine.—M. J. A. des Ligneris, Berne; D. M. Hunt, London Hospital; and H. Rowntree, Middlesex.
Midwifery.—H. H. Budd, St. Mary's Hospital; C. de C. W. Langdon, Manchester; J. G. Lewis, Durham; and T. T. O'Callaghan, Guy's Hospital.

The Diploma of the Society was granted to the following candidates, entitling them to practise Medicine, Surgery, and Midwifery:—W. J. Gibson, J. C. Johnson, and M. J. A. des Ligneris.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Ludwig Jacobsohn has been granted the title of Professor. — *Budapest:* Dr. K. Pellyesniczky has been appointed to the chair of Anatomy.—*Göttingen:* Dr. Ricke has been appointed Temporary Instructor in Odontology, a private dental surgery being utilised as before.—*Greifswald:* Dr. Willy Vorkastner has been recognised as *privat-docent* of Psychiatry.—*Kiel:* Dr. A. Bauereisen has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Marburg:* Dr. M. B. Schmidt of Zürich has been appointed to the chair of Pathology, and Dr. Fischer of Greifswald to the Lectureship in Dentistry.—*Naples:* Dr. Carlo Laccetti has been recognised as *privat-docent* of Surgical Diagnosis.—*Parma:* Dr. Ernesto Bertarelli has been appointed Extraordinary Professor of Hygiene.—*Sassari:* Dr. Mario Vincenzo Dettori has been recognised as *privat-docent* of Operative Medicine.—*Siena:* Dr. Arturo Guzzoni of Messina has been appointed to the chair of Clinical Midwifery.

METROPOLITAN POLICE SURGEONS' ASSOCIATION.—The annual meeting of this association, which has now reached its twenty-third year, was held at Frascati's Restaurant on Feb. 23rd. Dr. A. Dumville Roe, who has been a vice-president, was elected president for the coming year and Mr. Meredith Townsend and Dr. R. Esler vice-presidents. Dr. C. Owen Fowler and Dr. G. Nicol Henry were re-elected honorary secretaries and Dr. C. Pinel Gallie honorary treasurer, and an unanimous vote of thanks was passed thanking these gentlemen for the way in which they had fulfilled their respective arduous duties. The six vacancies on the council were filled by the election of Dr. G. A. Hamerton, Mr. P. J. Clark, Dr. G. B. Scott, Dr. Frank Shersby Smith, Mr. W. Evans, and Dr. T. Marshall. In moving the adoption of the report of the council for the past year reference was made to the loss the council had sustained owing to the retirement of Mr. W. A. Grogono, a vice-president, and Dr. J. L. Jaquet, a member of council, both having resigned through ill-health. Among other subjects which had been considered was the advisability of subsidising beds at suitable sanatoriums for the prompt treatment of early cases of tuberculous disease occurring in the police, and a deputation had represented this to the chief surgeon and the authorities at Scotland Yard. The meeting was followed by the annual dinner, which was under the chairmanship of the retiring president, Mr. Henry Bott, who was supported by Mr. C. K. Francis, one of the metropolitan police magistrates, Mr. J. Troutbeck and Mr. W. Schröder, the coroners, Major Wodehouse, C.B., of Scotland Yard, and Mr. Clinton T. Dent, the chief surgeon. After the usual loyal toasts had been honoured Mr. Francis proposed "The Metropolitan Police Surgeons' Association," and included with it that of all the members, many of whom had rendered him in his official capacity as magistrate great aid. He commented on the extraordinarily inadequate remuneration they received for their court work, which they were all so well qualified to carry out. The President-elect, Dr. Dumville Roe, in replying, laid special stress on the prosperity of the association, and paid a tribute to the great help and kind consideration that were always accorded the members by the authorities at Scotland Yard. Dr. Martindale Ward gave the toast of "The Commissioners, the Receiver, and the Chief Constables," which was replied to by Major Wodehouse and Mr. G. H. Tripp, the latter facetiously remarking that though as Receiver for the metropolitan police he was officially the enemy of divisional surgeons and might be looked upon as the skeleton of the feast, still he was at heart their friend, and he remarked how energetically the chief surgeon looked after the interests of the divisional surgeons, especially in that to them important matter, special fees. Dr. Henry proposed "The Chief Surgeon," and mentioned what a quiet revolution he had achieved, the abolition of the old station sponge which is now represented by sterilised wool, the fitting of aseptic dressing and instrument cabinets, the reduction of the number of statistical returns that were once needed and the simplification of the ones now used, all improvements effected at the expense of the last speaker, the Receiver for the metropolitan police district. Mr. Dent made a most interesting reply. Dr. Fowler expressed the satisfaction all felt at the presence of the guests, which was responded to by Mr. Troutbeck. The dinner concluded with the health of the President and Officers of the Association, to which the chairman suitably responded. Between the toasts an enjoyable concert programme was provided under the direction of Miss Edith Kirkwood, assisted by Miss Marian Jay and Mr. Stewart Gardner.

THE NEW KING'S COLLEGE HOSPITAL.—An appeal is being made by the removal committee of King's College Hospital for a further sum of £150,000 to carry on to the opening stage the work of construction of the new hospital and medical school at Denmark-hill. Sums amounting to £190,000 have been raised (exclusive of the value of the site of ten acres, amounting to £66,000, generously contributed by the Hon. W. F. D. Smith, chairman of the hospital and of the removal committee), and since the laying of the foundation-stone by King Edward building has rapidly proceeded, so that at the present time the central administration block, together with the out-patient and casualty department, bathing establishment, and the X ray and massage department above them, have been roofed in and nearly completed. It is hoped to complete wards enough to open the institution next year with 320 beds, a little more than half of the full complement of 600, and 120 more than the accommodation of the present hospital. The wards will be nine in number, on the pavilion plan, extending on rising ground to the south from the out-patient departments, administration building, and departmental buildings, which together form the frontage looking northward on Bessemer-road. The grounds extend right up to the railway cutting which divides the hospital from the beautifully wooded Ruskin Park, giving the patients all the advantages of a veritable country site in the midst of a rapidly encroaching forest of brick and mortar. The eastern block is approached from Bessemer-road by a court-yard, having on the left the casualty department with eight single-bedded, glass-walled, cross-ventilated observation wards above for the temporary isolation of suspicious out-patient cases. The entrance for in-patients is at the end of the court, and on the right is the entrance to the out-patient department, leading into a large hall capable of accommodating 500 people. This is separated by a corridor from the various consulting-rooms, so that on leaving the latter no patient will have to return to the waiting hall. In this block also is a very complete bathing establishment, with massage, X ray, and electrical departments above. The centre block is formed by the administration department, while the western wing will consist of the medical school and other departmental buildings. The ventilation and warming systems are especially worthy of notice. Apertures in the ceilings of all the rooms connect with a series of pipes on the roofs that converge to a number of large exhaust fans. Ventilators in the walls, a foot or two above the floor, are screened by the moveable radiators turning like a door on its hinges for cleansing purposes. By this means the incoming cold air will be heated by passing through the apertures in the radiators on its way. The heating will be by low-pressure steam, and the magnitude of the plant will be suggested by noting that it involves 18 miles of steam piping and seven miles of hot-water piping, while over 1000 radiators are used. There will be an ice-plant manufacturing ten tons daily. A glance at the situation of Bessemer-road, Denmark Hill, on the map of London, will indicate the large area to the poor of which this hospital will be within easy reach—Wandsworth, Balham, Brixton, Stockwell, Camberwell, Peckham, New Cross, and Deptford,

and the hope is widely felt that its out-patient department will be as far as possible consultative. A special fund is also being raised for the erection and endowment of the medical school.

THE staff of the Post-Graduate College, West London Hospital, have issued invitations for a conversazione to be held at the hospital on Wednesday, March 15th, at 8.30 P.M.

UNIVERSITY OF SHEFFIELD.—The Council at its last meeting made the following appointments:—Mr. Sinclair White, M.D., M.Ch. R.U.I., F.R.C.S. Eng., to the Professorship of Surgery in the University, in succession to Mr. R. J. Pye-Smith, resigned; Mr. George Stanfield, B.Eng. Sheffield, to the post of Demonstrator in Engineering; and Mr. Ll. Lloyd, B.Sc. Lond., to the post of Assistant Curator of the Zoological Museum.

THE EDWARD MEDAL.—At an investiture which was held by the King at St. James's Palace on Feb. 23rd His Majesty presented to Mr. E. A. Dando, M.R.C.S. Eng., L.R.C.P. Lond., the Edward Medal of the Second Class for "conspicuous gallantry on the occasion of an underground fire at the Russell Colliery, Staffs. Mr. Dando, who was summoned to the mine when the fire broke out, went down the pit and bravely assisted in the rescue work for several hours. He was at last overcome by the poisonous gases, and was brought to the surface unconscious, and did not recover from the effects of his courageous action for some time."

CENTRAL MIDWIVES BOARD.—A meeting of the Central Midwives Board was held at Caxton House, Westminster, on Feb. 23rd, Sir Francis H. Champneys being in the chair. The following letter from the Clerk of the Privy Council was received:—"26th January, 1911. To the Secretary, Central Midwives Board. Sir,—Referring to your letter of the 23rd instant, embodying certain resolutions passed at a meeting of the Central Midwives Board on the 19th instant, in regard to Clause 7 of the Midwives (No. 2) Bill, 1910, I am directed by the Lord President of the Council to state, for the information of the Board, that the proposals contained in the clause in question will not reappear in any future Bill which may be introduced on the subject, and that no deputation is therefore necessary.—I am, Sir, your obedient servant, (signed) ALMERIC FITZROY." The clause in question provides that every certified midwife shall in each year notify the Board of her address and pay a fee of 1s., failing which her name shall be removed from the roll and her certificate cancelled. Mr. E. Parker Young again drew attention to Clause 11, showing that it was objectionable because it meant interference with the practice of medical men. A letter was received from the Clerk of the Council in reply to the suggestion of the Board that Section 1 (2) of the Midwives Act, 1902, should be amended by the deletion of the words "habitually and for gain," pointing out that the proposed amendment might give rise to more laxity of administration than it would prevent, as "emergency" would conceivably be more difficult to disprove than it would be to establish a practice which is habitual and for gain. A letter was received from the medical officer of health of Manchester inquiring as to the truth of a statement appearing in a report in *Nursing Notes* for January, 1911, of the Board's decision to take no action in the cases of two certified midwives against whom the local supervising authority had found *primâ facie* cases of negligence or misconduct. The Board decided to reply to both questions in the affirmative, adding that the Board acted on the finding by the local supervising authority of a *primâ facie* case which it assumes would be adequately supported by evidence capable of proof at the hearing of the case. Letters were received from the medical officer of health of Ipswich as to the Board's decision to take no further action in the case of a certified midwife against whom the local supervising authority had found a *primâ facie* case of negligence. The Board decided that the medical officer of health of Ipswich be informed that, while the Board is entirely in sympathy with any endeavour to censure or to remove from the Roll the name of a midwife who has been proved to be guilty of serious breaches of the rules, and would regret as much as the local supervising authority the failure of any such case for want of complete legal proof, the responsibility for the decision in any particular case must remain with the Board alone. The Board decided that the opinion of the Privy Council should be sought as to whether a midwife guilty of a breach of the rules when acting as a maternity nurse is amenable to the jurisdiction of the Board.

ROYAL DENTAL HOSPITAL, LEICESTER-SQUARE, LONDON, W.—The annual general meeting of the governors of this hospital will be held on March 9th, at 5.30 P.M., when Mr. E. Lloyd-Williams, vice-president, will preside.

ROYAL SOCIETY OF ARTS.—A lecture on "Plague and its Dissemination" will be given at 8 P.M. on March 8th by Mr. James Cantlie. Sir Shirley Murphy will preside.

LITERARY INTELLIGENCE.—A fifth edition of Mr. Bland-Sutton's "Tumours: Innocent and Malignant," incorporating much new matter, is announced by Messrs. Cassell and Co. for publication on March 4th.—Messrs. J. and A. Churchill have ready for publication a work entitled "The Principles of Aeroplane Construction," with calculations, formulæ, and 51 diagrams, by Rankin Kennedy, C.E., author of numerous works on engineering.

BRITISH MEDICAL BENEVOLENT FUND.—The annual general meeting of this Fund will be held on Monday, March 6th, at the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W., at 5 o'clock in the afternoon. Sir John Tweedy, president, will preside, and the annual report will be presented by the treasurer, Dr. Samuel West. The meeting will be later addressed by Sir Thomas Barlow, Mr. Butlin, and Professor Howard Marsh. All those interested in the Fund and Guild, ladies and gentlemen, are invited to be present. Tea will be provided before the meeting.

THE MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN.—On Thursday, March 16th, at 8 P.M., in Clifford's Inn Hall, Fleet-street, a conference on these subjects has been arranged by the Fabian Education Group. Sir Victor Horsley will take the chair, and Mr. Reginald Bray, L.C.C. ("What has been done by the County Council"), Miss Margaret McMillan ("What might be done"), and Miss Marion Phillips, D.Sc., are announced to speak. Questions and debate will follow. The conference is open to all interested, who should communicate with Miss Agnes A. Crosthwaite, The Retreat, Westerham, Kent.

THE LOCAL GOVERNMENT BOARD AND THE MEDICAL TREATMENT OF OLD AGE PENSIONERS.—At a recent meeting of the Clutton (Somerset) board of guardians it was reported that the guardians had inquired of the Local Government Board whether it was the duty of the district medical officer to attend old age pensioners, and whether the guardians could legally grant medical relief for a period of three or six months to old age pensioners not otherwise paupers. The Local Government Board, in reply, stated it was the duty of the medical officer to attend old age pensioners, and that the guardians could make orders for periods of time, but it was necessary for them periodically to revise such orders.

THE ROYAL SANITARY INSTITUTE.—A meeting of this institute will be held at 90, Buckingham Palace-road, London, S.W., on March 14th, when Dr. Leonard Hill, F.R.S., will open a discussion on "Rescue Work in Mines," with a demonstration of apparatus in use. The chair will be taken at 8 P.M. by Mr. R. A. S. Redmayne, M.Sc., Chief Inspector Coal and Metalliferous Mines, Home Office.—A provincial sessional meeting will be held on March 17th in the Civil Court, Guildhall, Bristol, when a discussion will take place on Modern Methods of Purification of Public Water-supplies, to be opened by Mr. J. A. Macpherson, B.Sc., M.I.C.E. Among others the following gentlemen will take part in the discussion: Dr. D. S. Davies, medical officer of health, Bristol; Mr. Herbert Jones, medical officer of health, Herefordshire combined districts; Dr. J. M. Martin, county medical officer of health, Gloucestershire county council; Dr. W. G. Savage, county medical officer of health, Somerset county council; and Mr. J. Tubb-Thomas, county medical officer of health, Wilts county council. The chair will be taken at 10.45 A.M. by Dr. Louis C. Parkes, chairman of the council of the institute. Tickets for admission of visitors may be had on application to Mr. T. J. Moss-Flower, Carlton Chambers, Baldwin-street, Bristol, who is kindly acting as

the local honorary secretary of the meeting, and of Mr. E. White Wallis, secretary, 90, Buckingham Palace-road, London, S.W.

THE DEVON COUNTY MEMORIAL TO THE LATE KING.—The Lord Lieutenant of Devon recently appealed for the sum of £5000 to be subscribed as a county memorial to the late King. Up to the present £4595 have been received, and the remainder will doubtless shortly be raised. The money will be devoted to the provision of trained nursing for the sick poor of Devon.

DONATIONS AND BEQUESTS.—The late Mr. Joseph Shorrock, of Harewood, Disley, Cheshire, bequeathed £1000 to the National Society for the Prevention of Cruelty to Children.—The late Mr. George Newton, M.R.C.S. Eng., of Tower House, Shipley, and formerly of Dukinfield Lodge, Cheshire, has by will left among other bequests more than £36,000 to be divided between the Medical Missions Auxiliary of the Church Missionary Society and Dr. Barnardo's Homes.—The Dreadnought Seamen's Hospital has received £1000 for the endowment of a bed in memory of the late Mr. George Busk, F.R.S., past president of the Royal College of Surgeons of England, from his daughters, Miss E. Busk and Miss F. Busk.—Under the will of the late Mr. Jonathan Knowles, of Underwood Rawdon, Leeds, the Bradford Children's Hospital will receive £600 to be applied towards the permanent endowment of the "Mary Knowles" Ward.—The King of the Belgians has sent to the Liverpool School of Tropical Medicine a cheque for £500, in token of His Majesty's appreciation of the valuable work that the school is carrying on for the benefit of tropical countries.

CARNEGIE ENTOMOLOGICAL RESEARCH SCHOLARS.—With a view to furthering the work of the African Entomological Research Committee of the Colonial Office, Mr. Andrew Carnegie has placed at its disposal a sum of £1000 a year for three years to defray the cost of sending a few suitably qualified young men to the United States to study the practical applications of entomology which have received so much attention in that country. Three of these Carnegie scholars, as they are to be called, have been selected, and two of them are already at work in the United States. The fact that Dr. L. O. Howard, chief of the Bureau of Entomology at Washington, is personally interesting himself in the matter is a sufficient guarantee that all possible facilities will be given to the scholars, and it may be confidently expected that the scheme will be of great value to British administration in Africa and elsewhere by providing a body of well-trained entomologists available for employment in the services of the different colonial governments. Further particulars may be obtained from the secretary of the committee—Mr. Guy Marshall, British Museum (Natural History), South Kensington, London.

WEST SUSSEX SANITARY AUTHORITIES.—The appointment of Dr. A. G. R. Cameron, medical officer of health for the combined sanitary districts of West Sussex, as medical officer of health under the county council being considered a fitting opportunity to bring about a change in the combined districts, an important meeting of the representatives from the districts was held at Horsham on Feb. 23rd. Dr. R. D. Sweeting, an inspector of the Local Government Board, attended and gave expression to the official view on the subject. The existing combination, he said, was too unwieldy to be workable, and the Local Government Board suggested the division of the county into two parts according to its geographical suitability—the northern and southern districts with the Southdowns as the dividing line—a medical officer to be appointed to each to work in conjunction with the education authorities for school inspection, each officer to receive a minimum salary of £500 per annum. This arrangement, it was explained, could be effected with a reduction on the present expenditure. The meeting unanimously decided to adopt the suggestions of the Local Government Board as voiced by Dr. Sweeting, and the authorities concerned are to be asked to give the necessary sanction. In the course of the proceedings regret was expressed by the representatives of the combined sanitary districts upon the loss they were sustaining by the transference of Dr. Cameron to the county council; while, on the other hand, Dr. Cameron was heartily congratulated upon his success in securing the new appointment.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Army Hospitals.

Mr. HALDANE, the Secretary of State for War, in his Memorandum relating to the Army Estimates for 1911–12, makes a passing reference to army hospitals. He states that the work now being done in relation to hospitals is based on a comprehensive scheme for providing large hospitals on modern lines at certain central stations, the smaller stations being provided with reception stations, and motor ambulances being used as occasion requires for the transfer of patients to the central hospitals. Under this scheme the hospitals at Arbour Hill (Dublin), Chatham, York, and Tidworth are in course of transformation into central hospitals, the expenditure at the last-named station falling on the Military Works Loan. An important new service to be commenced next year is the provision of a new central hospital for Malta, where the existing hospitals are ill-placed and out of date.

Illegitimacy and Maternity Bill.

A Bill has been introduced in the House of Commons by Mr. KING "to consolidate and amend the Bastardy Laws; to enable maternity orders to be made with regard to certain women and girls; to make further provision with respect to certain maternity cases dealt with under the Acts relating to the relief of the poor, and otherwise to amend the law relating to illegitimacy and for other purposes connected therewith." The Bill, which has been read a first time, is supported by Sir ROBERT PRICE, Mr. ALDEN, Mr. HENRY MCLAREN, Mr. SNOWDEN, Mr. FLETCHER, Mr. GEORGE ROBERTS, and Mr. HERBERT CRAIG.

Nurses' Registration Bill.

Mr. MUNRO-FERGUSON has introduced the Nurses' Registration Bill in the House of Commons. It is described as "a Bill to regulate the qualifications of trained nurses and to provide for their registration." In again bringing forward this measure the right honourable gentleman has received representative support in all quarters of the House. The Bill is "backed" by Sir JAMES GIBSON, Sir LUKE WHITE, Dr. RAINY, Dr. ADDISON, Mr. J. A. BRYCE, Viscount MORPETH, Mr. SCOTT DICKSON, Mr. REMNANT, Mr. G. YOUNGER, Mr. RAMSAY MACDONALD, and Mr. FIELD.

Medical Graduates of the University of Wales.

A Bill is being brought forward by Sir D. BRYNMOR JONES "to define and enlarge the rights of graduates in medicine in the University Wales."

Rescue and Aid in Mines.

The Departmental Committee on the organisation of rescue and aid in connexion with accidents in mines has completed a report. It will probably be published at an early date.

HOUSE OF COMMONS.

WEDNESDAY, FEB. 22ND.

Dresden Hygiene Exhibition.

Mr. BYLES asked the President of the Board of Trade to state upon what grounds the promoters of the British exhibit at the forthcoming International Exhibition of Hygiene at Dresden were refused by his Department the grant which they asked for, although similar assistance had been given to the exhibition in Turin.—Mr. BUXTON replied: At the time when this country was invited to take part in the Dresden Hygiene Exhibition, the Board of Trade had already entered into engagements to organise official British sections at international exhibitions at Brussels, Buenos Aires, and Vienna in 1910, and at Rome and Turin in 1911. In these circumstances, and in view of the exacting demands made upon British manufacturers by too frequent participation in international exhibitions, the Board of Trade felt unable to undertake, or give official support to, the organisation of an exhibit of commercial products at the Dresden Exhibition of Hygiene. I have, however, expressed to the organisers of the exhibition in London the cordial interest which His Majesty's Government takes in the scientific side of this undertaking.

THURSDAY, FEB. 23RD.

The Nutritive Value of Bread.

Mr. GOLDMAN asked the President of the Local Government Board whether the inquiries now being made by the officers of the Board in connexion with bread included the question of the relative nutritive values of bread containing different proportions of the germ and the inner cuticle of the wheat berry, which were eliminated in the ordinary process of roller milling, and of ordinary bread containing none of these constituents.—Mr. BURNS answered: The subject referred to in the question is being considered in connexion with the inquiry into matters relating to flour and bread which is now proceeding. A preliminary report on the subject will, I hope, shortly be issued.

Mr. GOLDMAN asked the First Lord of the Admiralty whether, in view of the higher nutritive value of bread containing the germ and inner cuticle of the wheat berry over ordinary white bread, he would consider the desirability of providing that, in Admiralty contracts, no bread and flour should be supplied in which these things had been eliminated.—Mr. MCKENNA said in reply: It was the practice until recent years to supply the navy with "stone-ground" flour produced in Government mills at the victualling yards, but there was considerable prejudice amongst the men against the dark-coloured bread and puddings which this flour produced, and very little was consumed. It was consequently decided to dismantle the Government mills and to

purchase from millers the "roller-ground" flour which is used in the private trade. The bread, &c., made from this flour is very popular in the navy. Before eliciting the present opinion of the fleet on the subject it is proposed to wait until the Local Government Board experts, who are at present investigating the comparative nutritive qualities of the various descriptions of flour, have made their report.

Mr. KELLAWAY: Is the right honourable gentleman aware that, in the opinion of some of the leading millers in the country, the so-called standard bread consists of ordinary bread made with ordinary flour to which a little pig meal has been added?

Mr. MCKENNA: I was not aware of that. I can only repeat that the bluejackets who had this bread do not seem to like it.

Mr. C. DUNCAN: Before any change is made will the opinion of the men be obtained?

Mr. MCKENNA: Yes, sir. The sailors have strong opinions of their own as to whether they like food or they do not.

Borax in the Preservation of Meat.

Mr. HUNT asked the President of the Local Government Board whether, in view of the fact that the use of borax in the preservation of meat was a criminal offence in America and that borax was allowed to be used in specially marked boxes for exportation to this country from America, he had taken any steps to preserve the health of our people from the bad effects of American meat preserved by borax.—Mr. BURNS replied: I am advised that as far as the public health is concerned these matters are sufficiently dealt with by the regulations which have been made under the Public Health (Regulations as to Food) Act, 1907. I do not consider that further steps are at present called for.

American Imported Meat.

Mr. HUNT asked the President of the Local Government Board whether, in view of the fact that the American Government marked as fit and wholesome for human food the remainder of the carcasses of animals from which parts affected by tuberculosis, malignant tumours, and other diseases had been cut out, he had taken any steps to prevent such meat, either tinned, chilled, or frozen, from being sold for food in this country without due notice to purchasers as to the origin of this meat.—Mr. BURNS answered: Under the Public Health (Unsound Food) Regulations, 1908, the medical officer of health is empowered to seize any article of food landed within the district which is unsound, unwholesome, or unfit for human consumption. I do not at present think it necessary to make further provisions on the subject. I may observe that the rules laid down by the United States authorities governing the inspection of carcasses of cattle intended for export, either inter-state or foreign, are not less stringent than those observed in this country. In the case of the pig the United States standard is less stringent than that obtaining in this country, and in accordance with the provisions of the Foreign Meat Regulations, American pork, fresh chilled or frozen, is only admissible if it comes in the form of a whole carcass so as to permit of examination for disease.

Mr. HUNT: Is the right honourable gentleman aware that in this country carcasses of any animals suspected of tuberculosis or other malignant disease are altogether destroyed and under the American regulations it is not so? Is he aware that according to the American regulations the diseased parts only have to be cut off and the rest of the carcass is stamped by the American Government as sound and fit for human food?—Mr. BURNS: I have nothing to do with the American regulations, but this I do know, that there is no country in the world where the regulations as to importation of unsound, unfit, and unwholesome food are as stringently administered as in this country.

Medical Report on Employment in Telephone Exchanges.

Mr. WILLIAM THORNE asked the Postmaster-General whether he had now considered the report of the medical officers upon the conditions of employment in telephone exchanges, and when it was proposed to publish the same.—Mr. H. SAMUEL replied: The report has been under close consideration, and the details of its various proposals have been or are being worked out by the department. The question of publication is not yet decided.

The Public Health Department of Egypt.

Mr. RAMSAY MACDONALD asked the Secretary of State for Foreign Affairs whether, with reference to the resignation of Dr. E. H. Ross and Dr. H. C. Ross from the Public Health Department of Egypt, Sir Horace Pinching, the late Director-General, was consulted upon the question of what offers he made to the Drs. Ross which induced them to surrender positions in the navy in order to join the Egyptian service; whether Sir Horace Pinching had, or had not, admitted that he offered them permanent appointments in the Egyptian service; and whether the Government proposed to accept responsibility for the actions of its responsible officers and accredited agents in Egypt.—Sir EDWARD GREY replied: Dr. E. H. Ross held an appointment on the permanent staff of the Egyptian Public Health Department until his resignation, which, it is understood, took effect from the beginning of this month. From a letter addressed by Sir Horace Pinching to Dr. H. C. Ross (dated May 25th, 1906), a copy of which has been communicated to me, it is evident that this gentleman's appointment was temporary. I would refer the honourable Member to the reply I returned to his question of May 26th, 1909. The reply to the last part of this question is in the affirmative, but I must point out that officials of the Egyptian Health Department are in the service of the Egyptian and not of His Majesty's Government.

The Water-supply of Cairo.

Mr. RAMSAY MACDONALD asked the Secretary of State for Foreign Affairs whether his attention had been drawn to the proposal of Dr. Graham, the Director-General of the Public Health Department, Cairo, to take the water-supply for the town from a point in the Nile below the town; whether the Foreign Office had any power to prevent the carrying out of this scheme; and whether it was possible for the Foreign Office to consult the previous directors of the Public Health Department, like Sir Horace Pinching, on Dr. Graham's proposal.—Sir EDWARD GREY answered: I would refer the honourable Member to pages 34 and 35 of the report from His Majesty's Agent and Consul-General at Cairo for the year 1909, where the subject is fully dealt with. His Majesty's Government do not propose to address the Egyptian Government with regard to this question, which, as the honourable Member will see, has been so thoroughly investigated by the most competent experts in Egypt.

MONDAY, FEB. 27TH.

Vaccination of Children.

Mr. CRAWSHAY-WILLIAMS asked the President of the Local Government Board whether any cases of small-pox had occurred in England amongst children since the passing of the Vaccination Act, 1907, and, if so, whether any of those patients had been exempted from vaccination under the conscience clause of that Act.—Mr. BURNS replied: Cases of small-pox have occurred amongst children since the passing of the Vaccination Act. Their number cannot be given, but in the two years 1908 and 1909 the number of deaths from small-pox of children under 15 recorded by the Registrar-General was six. Four of these cases are stated to have been unvaccinated; in the other two cases it is doubtful whether they had been vaccinated or not. I have no information as regards these six deaths whether certificates of exemption from vaccination had been obtained.

Arm-to-Arm Vaccination in Scotland.

Mr. WEIR asked the Lord Advocate whether, in view of the fact that arm-to-arm vaccination had long since been abolished in England with satisfactory results, the Secretary for Scotland would take such steps as might be necessary to secure its abolition in Scotland.—Mr. URE replied: The practice of arm-to-arm vaccination is almost, if not quite, obsolete in Scotland, but it could not be directly abolished without further legislation. The Local Government Board invariably recommends the use of glycerinated calf lymph and supplies it free of charge to parish vaccinators. I may add that during the last two years no applications for humanised lymph were received by the department.

The Anti-Malaria Campaign at Cairo.

Mr. RAMSAY MACDONALD asked the Under-Secretary of State for Foreign Affairs whether an anti-malaria campaign, carried on in Cairo in 1907, had been interrupted by a disagreement between the medical and administrative authorities, with the result that mosquito destruction had been stopped and that malaria had reappeared in districts where the 1907 campaign had almost stamped it out; whether he had any knowledge that recently repeated requests had been made by the inhabitants of Cairo to the sanitary department to re-initiate the mosquito campaign; and whether the Foreign Office proposes to bring more pressure to bear upon those responsible for the public health of Cairo, so that obvious precautions might be taken against malaria.—Mr. MCKINNON WOOD answered: I have no more recent information on this subject than that given in the 1909 report from H.M.'s Agent and Consul-General at Cairo, but I will ask for a report on the points raised in this question.

The Weir Hospital Charity.

Mr. PIKE PEASE (on behalf of Sir HENRY KIMBER) asked the honourable Member for the Stroud Division, as representing the Charity Commissioners, whether, in view of the fact that the order of the Charity Commissioners establishing a scheme for the administration of the Weir Hospital Charity was discharged by the order of the Court of Appeal so long ago as June 7th, 1910, and the matter was remitted to the Commissioners to administer the charity in accordance with the directions of the testator, there was any reason why a scheme for the proper administration of the charity had not yet been published; and what steps had been, or were likely in the near future to be, taken by the Commissioners to give the parish of Streatham the benefits of the charity bequeathed to them.—Mr. C. P. ALLEN replied: The Charity Commissioners have been, and are still, in communication with the trustees of Mr. Weir's will as to the provisions of a new scheme. The honourable Member may be assured that the new scheme will be framed in accordance with the views expressed by the Court of Appeal for the establishment and maintenance at the testator's residence of a cottage hospital which will be, as directed by him, for the benefit of the inhabitants of Streatham and the neighbourhood.

TUESDAY, FEB. 28TH.

Small-pox in London.

Mr. COOPER asked the President of the Local Government Board how many cases of small-pox had been reported in the County of London since Jan. 1st, 1911, and how many of these cases had been vaccinated.—Mr. BURNS replied: From Jan. 1st to the evening of yesterday 41 cases were notified and removed to the Metropolitan Asylums Board's Hospitals. Of the 36 cases in the hospitals of the Asylums Board on Sunday evening last 29 were vaccinated and 7 were unvaccinated. In 24 of the cases vaccination was performed more than 15 years ago and in two others at least 10 years ago. The three other vaccinated cases were those of children, and the attack is said to be mild.

Mr. HARRY LAWSON asked whether the attention of the right honourable gentleman had been called to the outbreak of small-pox in the East-End of London; and whether he was satisfied that all proper steps were being taken to deal with it by the Metropolitan Asylums Board and the other local authorities.—Mr. BURNS answered: My attention has, of course, been drawn to this outbreak, and my officers have been inquiring into it. The reports I have received show that all the authorities concerned are, through their officers, taking active measures to deal with the outbreak. Should the disease assume wider dimensions, no doubt these measures may require to be supplemented.

Small-pox Hospitals in Scotland.

Mr. MUNRO-FERGUSON asked the Lord Advocate whether it was the view of his Department that vaccination no longer deserved encouragement and that the best precaution against small-pox was an ample provision by local authorities of small-pox hospitals; and whether the Government intended to make any contribution towards the cost of providing small-pox hospitals.—Mr. URE answered: The view suggested by my right honourable friend is not that of the Government, nor is there, so far as I am aware, any fund out of which the suggested contribution could be made.

Precautions against Plague.

Earl WINTERTON asked the President of the Local Government Board what steps had been taken at the Channel ports medically to examine persons arriving from districts in Eastern Europe where plague existed.—Mr. BURNS wrote in reply: The Local Government Board's Order of 1909 requires the Customs' officer on the arrival of a ship from a foreign port to ascertain whether the ship is an infected ship or has come from an infected port and to question the captain. At the present time the only district in Eastern Europe known to be affected with plague is in the government of Astrakhan on the Asiatic borders,

an area inhabited by nomadic tribes who are unlikely to travel to these islands by train and the Channel passage.

Public Slaughter-houses in Scotland.

Mr. WATT asked the Lord Advocate to state the number of burghal local authorities in Scotland who have public slaughter-houses, and the number of such local authorities who had appointed or employed veterinary surgeons under the Public Health (Scotland) Act, 1897, and the Dairies, Cowsheds, and Milkshops Orders; and would he say how many burghal local authorities had not adopted any of these courses.—Mr. URE said in reply: The most recent returns for the year 1909 show that in that year there were 123 burghs in Scotland which had public slaughter-houses and 82 which had not. Every burghal local authority in Scotland has approved one or more veterinary surgeons for the purposes of the Public Health (Scotland) Act, 1897, and of the Order referred to by my honourable friend.

Bakehouses and Public Health.

In reply to Mr. WILKIE, Mr. CHURCHILL said: The whole question of conditions of work in bakehouses, in regard to the effect both on the health of the workers and on the public health, is being made the subject of investigation by my department in conjunction with the Board of Trade and the Local Government Board, and until the inquiries are completed I am afraid I can make no statement on the question of legislation.

Hospital Accommodation at Rosyth.

Major ANSTRUTHER GRAY asked the First Lord of the Admiralty whether, in view of the number of men employed at Rosyth, he would use his influence and secure them improved hospital accommodation which was reported to be inadequate.—Mr. MCKENNA replied: The care of the men employed on the dockyard works at Rosyth is entirely in the hands of the contractors, and I am not aware that the contractors' arrangements are inadequate.

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND SONS, 44 and 45, Rathbone-place, London, W.

Œdipus, King of Thebes. By Sophocles. Translated into English Rhyming Verse with Explanatory Notes by Gilbert Murray, LL.D., D.Litt., F.B.A., Regius Professor of Greek in the University of Oxford. Price, cloth, 2s. net; paper, 1s. net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.

The Bradshaw Lecture on Cancer. Delivered at the Royal College of Surgeons of England on Wednesday, Dec. 7th, 1910. By Sir Alfred Pearce Gould, K.C.V.O., M.S. Lond., F.R.C.S. Eng. Price 3s. 6d. net.

CONSTABLE AND COMPANY, LIMITED, London.

The Surgery of the Diseases of the Appendix Vermiformis and their Complications. By William Henry Battle, F.R.C.S., and Edred M. Corner, M.A., M.B., M.C., F.R.C.S. Second and enlarged edition. Price 10s. 6d. net.

GLAISHER, HENRY J., London.

Reminiscences and Letters of Joseph and Arnold Toynbee. Edited by Gertrude Toynbee. Price 2s. 6d. net.

GRIFFIN, CHARLES, AND COMPANY, LIMITED, London.

The Child: A Medical Guide to its Care and Management. By Albert Westland, M.A., M.D., C.M. Price not stated.

HODDER AND STOUGHTON, London. WHEELER, ARTHUR H., AND CO., London.

The Niger and the West Sudan, or The West African's Note Book. A Vade Mecum containing Hints and Suggestions as to what is required by Britons in West Africa, together with Historical and Anthropological Notes and Easy Hausa Phrases used in Everyday Conversation. By Captain A. J. N. Tremearne (Commonwealth Forces of Australia), D.Anth. Cantab., F.R.G.S., F.R.A.I., Lecturer and late Hausa Scholar, Cambridge. Price 6s. net.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.

The Essentials of Materia Medica and Therapeutics for Nurses. By John Foote, M.D., Assistant Professor of Therapeutics and Materia Medica, Georgetown University School of Medicine. Price 4s. 6d. net.

Practical Lessons in Nursing. Fever-Nursing: Designed for the Use of Professional and Other Nurses, and Especially as a Text-book for Nurses in Training. By J. C. Wilson, A.M., M.D., Visiting Physician to the Hospital of the Jefferson Medical College and to the Pennsylvania Hospital. Sixth edition, revised and enlarged. Price 5s.

MCGRAW-HILL BOOK COMPANY, 239, West 39th Street, New York, and 6, Bouverie-street, London, E.C.

Municipal Chemistry. A Series of Thirty Lectures by Experts on the Application of the Principles of Chemistry to the City, delivered at the College of the City of New York, 1910. Edited by Charles Baskerville, Ph.D., F.C.S., Professor of Chemistry and Director of the Laboratory, College of the City of New York. Price, $5.00, or 21s. net, post paid.

MACMILLAN AND CO., LIMITED, London.

The Feeble-minded. A Guide to Study and Practice. By E. B. Sherlock, M.D., B.Sc. Lond., D.P.H., Barrister-at-Law. With an Introductory Note by Sir H. B. Donkin, M.D. Oxon., F.R.C.P. Lond. Price 8s. 6d. net.

MURRAY, JOHN, London.

Convergence in Evolution. By Arthur Willey, D.Sc. Lond., Hon. M.A. Cantab., F.R.S. Price 7s. 6d. net.

REBMAN, LIMITED, London. REBMAN COMPANY, New York.

Expansion of Races. By Charles Edward Woodruff, A.M., M.D., Member of the American Association for the Advancement of Science. Price 17s. net.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by Leighton F. Appleman, M.D. Volume IV. December, 1910. Annual subscription, £2 net. Single volumes, 12s. net each.

Conferences on the Moral Philosophy of Medicine, prepared by J. W. S. Gouley, M.D. Price 6s. net.

Cesare Lombroso, a Modern Man of Science. By Hans Kurella, M.D. Translated from the German by M. Eden Paul, M.D. Price 4s. 6d. net.

Surgery of Genito-Urinary Organs. By J. W. S. Gouley, M.D. Price 8s. net.

Essentials of Modern Electro-Therapeutics. An Elementary Text-book on the Scientific Therapeutic Use of Electricity and Radiant Energy. By Frederick Finch Strong, M.D., Instructor in Electro-Therapeutics at Tufts College Medical School, Boston. Price 4s. net.

The Climatic Treatment of Children. By Frederick L. Wachenheim, M.D., Chief of Clinic, Children's Department, Mount Sinai Hospital Dispensary, New York. Price 6s. 6d. net.

Principles and Application of Local Treatment in Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D., Physician to the New York Skin and Cancer Hospital. Price 4s. 6d. net.

Handbook of Treatment for Diseases of the Eye (Ophthalmic Therapeutics). By Dr. Curt Adam, Assistant Surgeon in the I. University Clinic for Diseases of the Eye, Berlin. With a Preface by Prof. von Michel, Berlin. Translated from the Second German Edition (1910) by William George Sym, M.D., F.R.C.S. Ed., and E. M. Lithgow, M.B., F.R.C.S. Ed. Price 10s. net.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.

Personal Hygiene and Physical Training for Women. By Anna M. Galbraith, M.D. Price 10s. net.

Vaginal Celiotomy. By S. Wyllis Bandler, M.D., Adjunct Professor of Diseases of Women, New York Post-graduate Medical School and Hospital. Price 21s. net.

The Anatomic Histological Processes of Bright's Disease and their Relation to the Functional Changes. Lectures delivered in the Russell Sage Institute of Pathology, City Hospital, New York, during the Winter of 1909. By Horst Oertel, Director of the Russell Sage Institute of Pathology, New York. Price, cloth, 21s. net.

Principles and Practice of Modern Otology. By John F. Barnhill, M.D., Professor of Otology, Laryngology, and Rhinology, Indiana University School of Medicine, and Ernest de Wolfe Wales, B.S., M.D., Clinical Professor of Otology, Laryngology, and Rhinology, Indiana University School of Medicine Second edition, thoroughly revised. Price, cloth, 24s. net.

A Text-book of Surgical Anatomy. By William Francis Campbell, M.D., Brooklyn, New York, Professor of Anatomy, Long Island College Hospital. Second edition, revised. Price 21s. net.

THACKER, SPINK, AND CO., Calcutta.

Hints to Dressers. By Samuel Anderson, B.Sc., M.B., C.M. Glas., D.T.M. & H. Camb., Major, Indian Medical Service. Price Re.1.

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Howard Taylor Ricketts y sus Trabajos sobre el Tabardillo (Tifo de México). Publicado por la Secretaria de Instrucción Pública y Bellas Artes en cumplimiento del acuerdo relativo del Presidente de la República. Price not stated.

"TRUTH" PUBLISHING COMPANY, LIMITED, 10, Bolt-court, Fleet-street, London, E.C.

"Truth" Cautionary List for 1911. Price 1s.; by post, 1s. 2d.

UNIVERSITY PRESS, Manchester.

Feeblemindedness in Children of School-Age. By C. Paget Lapage, M.D., M.R.C.P. With an Appendix on Treatment and Training by Mary Dendy, M.A. Price 5s. net.

UNWIN, T. FISHER, London and Leipsic.

The Conquest of Consumption. An Economic Study. By Arthur Latham, M.D., and Charles H. Garland. New and revised edition. Price 1s. net.

URBAN UND SCHWARZENBERG, Berlin und Wien.

Aerztliche Fortbildungakurse der freien Organisation für die medizinischen Kurse an der k.k. Universität Wien. (Postgraduate Medical Work in the University of Vienna. Information in German, English, and French.) Gratis on application.

Die Erweiterte Abdominale Operation bei Carcinoma Colli Uteri. (Auf Grund von 500 Fällen.) Von Prof. Dr. E. Wertheim in Wien. Price, paper, M.12; bound, M.14.50.

Medizinische Terminologie. Ableitung und Erklärung der Gebräuchlichsten Fachausdrücke aller Zweige der Medizin und ihrer Hilfswissenschaften. Von Stabsarzt Dr. Walter Guttmann, in Mühlheim a.d.Ruhr. Vierte umgearbeitete und erweiterte Auflage. Price M.19.

WIGAND, OTTO, Rossplatz, 3, Leipzig.

Über abnorme Lage der männlichen Keimdrüsen mit besonderer Berücksichtigung des Kryptorchismus. Von Dr. med. H. von Foth. Price M.2.40.

WILSON, EFFINGHAM, London. (HOLMES, W. AND R., Glasgow.)

Key to Elementary Book-keeping. For Day and Evening School and Commercial Classes. By Andrew Munro, F.C.I.S. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALDRIDGE, NORMAN E., M.B. Edin., D.P.H., has been appointed Medical Officer in Charge of the X Ray Department at the Royal Hampshire County Hospital, Winchester.

BARRINGTON-WARD, L. E., M.B., F.R.C.S. Edin., has been appointed Resident Medical Superintendent at the Hospital for Sick Children, Great Ormond-street.

BURD, GEORGE VANHOUSE, L.R.C.P., L.M. Edin., M.R.C.S., has been appointed District Medical Officer of Health by the Okehampton (Devon) Board of Guardians.

FAIRCLOUGH, W., M.B., B.S. Durh., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Hexham District of the county of Northumberland.

HARMAN, A. B., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Southampton District of the county of Hants.

HILLYAR, GEORGE HEWLETT STANHOPE, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Honorary Medical Officer to the Tavistock (Devon) Cottage Hospital and Dispensary.

KEANE, P., M.D. R.U.I., has been appointed Assistant House Surgeon to the West Bromwich District Hospital.

LEVIS, GEORGE S., L.R.C.P. & S. Irel., L.M., has been appointed Assistant County Medical Officer and School Medical Inspector for the County of Lindsey, Lincolnshire.

LUCY, REGINALD HORACE, M.B., C.M. Edin., F.R.C.S. Eng., has been appointed Honorary Consulting Surgeon to the Tavistock (Devon) Cottage Hospital and Dispensary.

MITCHELL, JAMES, M.B., Ch.B. Aberd., D.P.H. Camb., has been appointed Medical Officer of Health for the Rural District of Glanford Brigg and the Urban Districts of Broughton and Brigg, Lincolnshire.

MURPHY, J. J., M.D., M.R.C.S., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

PATRICK, N. C., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Glenavy District of the county of Antrim.

REES, REES WILLIAM, M.R.C.S., L.R.C.P. Lond., D.P.H., has been appointed Medical Officer of Health to the Cardiganshire County Council.

RIGBY, HUGH M., F.R.C.S. Eng., Surgeon to H.M. the King's Household, has been appointed Consulting Surgeon to the City of London Lying-in Hospital.

SMITH, C. W., M.B. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Sheffield (Hillsborough) District of the county of Yorks, West Riding.

TASKER, L. S. B., M.B., B.S. Lond., has been appointed House Surgeon at the Evelina Hospital for Sick Children.

TURNER, G. J. K., M.B., M.S. Aberd., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Broughton Astley District of the county of Leicester.

WHITE, SINCLAIR, M.D. R.U.I., F.R.C.S. Eng., D.P.H. Cantab., has been appointed Professor of Surgery in the Sheffield University.

WOOLLCOMBE, WALTER LEY, F.R.C.S. Edin., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Consulting Surgeon to the Tavistock (Devon) Cottage Hospital and Dispensary.

WORTHINGTON, ROBERT ALFRED, M.B., B.C. Cantab., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Surgical Registrar and Assistant Pathologist to the Royal Devon and Exeter Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN ROYAL INFIRMARY.—Assistant Medical Electrician.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BIRMINGHAM, PARISH OF, INFIRMARY.—Assistant Resident Medical Officer. Salary £104 per annum, with apartments, rations, attendance, &c.

BRADFORD, ROYAL EYE AND EAR HOSPITAL.—Female Resident. Salary £30 per annum, with board and laundry.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 per annum, with apartments, board, and laundry.

CAMBRIDGE, COUNTY ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £120 per annum, with board, lodging, and attendance.

CANCER HOSPITAL, Fulham-road, London, S.W.—House Surgeon for six months. Salary £70 per annum.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer, as House Physician for first six months and House Surgeon for ensuing six months. Salary at rate of £80 and £100 per annum respectively, with board, lodging, and washing.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Pathologist. Salary at rate of 100 guineas per annum.

DERBY, COUNTY BOROUGH OF.—School Medical Officer. Salary £250 per annum.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and washing.

EAST HAM EDUCATION COMMITTEE.—Assistant School Medical Officer, also as Deputy Medical Officer of Health. Salary £250 per annum.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Surgeon. Salary at rate of £75 per annum, with board, residence, and laundry. Also Officer for the Electrical Department.

EDINBURGH ROYAL INFIRMARY.—Superintendent. Salary £600 per annum, with house, coal, and light.

FIFE, COUNTY OF.—Assistant School Medical Officer. Salary at rate of £250 per annum.

GLAMORGAN COUNTY COUNCIL.—County Medical Officer and School Medical Officer. Salary £800 per annum.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence.

HULL ROYAL INFIRMARY.—Assistant House Surgeon. Salary £100 per annum, with board and lodging. Also Casualty House Surgeon for six months. Salary at rate of £60 per annum, with board and lodging.

JERSEY GENERAL DISPENSARY AND INFIRMARY.—Resident Medical Officer, unmarried. Salary £100 per annum, with apartments, board, and attendance.

KING EDWARD VII. MEMORIAL SANATORIUM FOR SHROPSHIRE.—Resident Medical Officer, unmarried. Salary £200 per annum, with board and residence.

LEAMINGTON, WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary £65 per annum, with board, washing, and apartments.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Three House Surgeons and Two House Physicians for six months. Salary at rate of £60 per annum, with board and residence.

LONDON FEVER HOSPITAL, Liverpool-road, Islington, N.—Physician and Assistant Physician.

MANCHESTER, ANCOATS HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with board, &c. Also Anæsthetist. Salary £40 per annum.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician and Two House Surgeons. Salaries at rate of £80 per annum. Also Assistant House Physician and Two Assistant House Surgeons. Salaries at rate of £40 per annum. Board and washing in each case. All for six months.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—House Surgeon. Salary £60 per annum, with board, residence, and laundry.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

POPLAR HOSPITAL FOR ACCIDENTS, Poplar, E.—Assistant House Surgeon for six months. Salary at rate of £30 per annum, with board and residence.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—Assistant House Surgeon. Salary £75 per annum, with board, &c.

ROYAL EAR HOSPITAL, Soho.—Honorary Assistant Anæsthetist.

ROYAL FREE HOSPITAL, Gray's Inn-road, W.C.—Assistant Anæsthetist (female). Salary £50 per annum. Also Senior Resident Medical Officer. Salary £100 per annum, with board, residence, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

ROYAL NAVAL MEDICAL SERVICE.—Twelve Commissions.

ST. THOMAS'S HOSPITAL.—Obstetric Physician.

SALFORD ROYAL HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with board and residence.

SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—Honorary Assistant Medical Officer.

SHEFFIELD UNIVERSITY.—Demonstrator in Anatomy. Salary £150 per annum.

SHREWSBURY, SALOP INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and residence.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £30 per annum, with board, washing, and residence.

STREET TUBERCULIN DISPENSARY, Street, Somerset.—Second Assistant (female) for three months. Board and lodging offered.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £75 per annum, with board, washing, and attendance.

TOWER HAMLETS DISPENSARY, Whitehorse-street, Stepney, E.—Resident Medical Officer. Salary £100 per annum, with apartments, washing, light, and attendance.

WALSALL AND DISTRICT HOSPITAL.—Junior House Surgeon. Salary £30 per annum, with board, residence, and laundry.

WEST BERKS UNITED DISTRICTS.—Medical Officer of Health. Salary £300 per annum.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry allowance provided.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Junior House Surgeon. Salary at rate of £30 per annum, with board, residence, and washing. Also Honorary Surgeon.

WORCESTER COUNTY AND CITY ASYLUM, Powick, Worcester.—Third Assistant Medical Officer. Salary £140 and all found.

WREXHAM, BOROUGH OF.—Medical Officer of Health and School Medical Officer. Salaries £80 and £50 per annum respectively.

WREXHAM, RURAL DISTRICT COUNCIL OF.—Medical Officer of Health. Salary £300 per annum. Also to act as Medical Superintendent of the Joint Fever Hospital. Salary £70 per annum.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Northallerton, in the county of Yorks, North Riding; at Inverkeithing, in the county of Fife; at Kingscliffe, in the county of Northampton; at Windsor, in the county of Berks; and at Atherstone, in the county of Warwick.

Births, Marriages, and Deaths.

BIRTHS.

FAIRLIE CLARKE.—On Feb. 24th, at Horsham, Surrey, the wife of A. J. Fairlie Clarke, M.C., F.R.C.S., prematurely, of twin sons (one stillborn).

HENDERSON.—On Feb. 24th, at Rodney-street, Liverpool, the wife of Dr. W. Savile Henderson, of a son.

HOLLAND.—On Feb. 23rd, in Edinburgh, the wife of H. Tristram Holland, F.R.C.S.E., C.M.S. Hospital, Quetta, of a son.

STREET.—On Feb. 21st, at Cranfield, Woburn Sands, the wife of Albert Ernest Street, M.R.C.S., L.R.C.P., of a daughter.

DEATHS.

MACPHERSON.—On Feb. 22nd, at Whitehall Park, Highgate, N., Peter Macpherson, M.D., in his 75th year.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE VARYING CAPACITY OF TEASPOONS.

ATTENTION has again been called to the possible variations in the capacity of teaspoons by a pharmacist who took the trouble to collect a number of teaspoons from different customers. He found them to vary in capacity from 90 to 120 minims. The attention of the pharmacist was drawn to the matter by the complaint of a customer for whom he had dispensed a mixture containing 2 grains of morphine sulphate in an ounce mixture the dose of which was 1 drachm every hour until relieved. After the third dose had been taken the customer complained of distressing effects, and upon investigation it was found that he was using a teaspoon which held 110 minims, and was therefore taking much more than the dose prescribed. In the days of the old-fashioned silver teaspoons the variation in capacity was almost negligible, but since the introduction of electro-plate makers seem to vie with each other in increasing the size of spoons. Dessertspoons and tablespoons also vary considerably in measurement, and prescribers would be well advised to insist upon their patients using graduated measures. In these days of standardised galenical preparations and scientific prescribing the teaspoon a a measure is obviously out of place.

ENCEINTE.

To the Editor of THE LANCET.

SIR,—I should also like to call attention to the Second Book of Kings, chapter iv., verses 16 and 17, where Elisha addresses the Shunammite. They are as follows: "And he said, About this season, according to the time of life, thou shalt embrace a son. And she said, Nay, my lord, thou man of God, do not lie unto thine handmaid. And the woman conceived, and bare a son at that season that Elisha had said unto her, according to the time of life." The word "embrace" is the word to which I wish to draw attention. The French Bible says "tu embrasseras un fils" and the Spanish Bible reads "Abrazarás un hijo." It seems to me that in this expression the word "embrace" means to "embrace in the womb," and if it does mean so it would show that the idea of encompassing by the womb is very old, and that therefore "enceindre" may well mean encompass in like manner.

For those who prefer to accept the etymology *incincta* in the sense of *non cincta*, it must not be forgotten that even Landais himself, who made a special feature of etymology in his dictionary, admits "that the Spanairds, by a kind of antiphrasis, say of a femme grosse, that she is *en cinta*, in girdle." Even old Spanish dictionaries state that "estar la muger en cinta" means to be with child. The haughty Spaniards seem to have defied the etymology of their learned Bishop, Isidore of Seville, but the French treat him with more respect.

I am, Sir, yours faithfully,

Feb. 25th, 1911. BLANCUS.

AN INCOMPATIBLE MIXTURE, CHLORAL AND MAGNESIA.

AT a recent meeting of the Pharmaceutical Society in Edinburgh Mr. Donald McEwan called attention to an incompatible mixture of a somewhat unusual character. A prescription, of which the ingredients were syrup of chloral, heavy magnesia, ipecacuanha wine, tincture of belladonna, and water, was duly dispensed, and on the following day the prescriber brought the bottle to the pharmacist, saying that he meant to give his patient syrup of chloral, but was afraid the dispenser must have dispensed spirit of chloroform instead. Notwithstanding that the prescription had been accurately dispensed it was evident from the smell that chloroform was present. Subsequent experiments demonstrated that the chloroform resulted from reaction between the chloral hydrate and the magnesia. In this mixture the sedative action of the chloral, which was the aim of the prescriber, is lost, and instead each dose contains about 3 minims of chloroform and 2½ grains of magnesium formate. Another important point is that the alkaloids of the belladonna and ipecacuanha are liberated by the magnesia, and completely separated and carried down by the globules of chloroform. The prescriber solved the difficulty by omitting the magnesia.

HEALTH MATTERS IN BRITISH GUIANA.

A REPORT on the Blue-Book of British Guiana for 1909-10, prepared by Mr. J. Hampden King, Assistant Government Secretary, has been received at the Colonial Office and presented to both Houses of Parliament. The section devoted to vital statistics and public health gives the present estimated population of the Colony as 305,097—158,435 males and 146,662 females. The birth-rate for 1909 was 29·3 per 1000 of the population, the mean rate for the previous five years having been 30·4. Of the births registered 3577, or 40 per cent., were legitimate, and 5370, or 60 per cent., were illegitimate. The birth-rate per 1000 of the estimated population of each of the different races represented in the community was as follows:—Europeans (other than Portuguese), 11·1; Portuguese, 23·8; East Indians, 27·6; Chinese, 32·2; Aborigines, 61·3; blacks, 30·9; and mixed races, 27·5. The death-rate was 30·0 per 1000, as compared with a mean rate for the previous five years of 30·5. The mortality amongst children under one year continues to be high, and the mean rate for the past five years has been 210 per 1000. The health of the colony showed no marked improvement over the previous year. There was no epidemic of any dangerous, infectious, or contagious disease, though the existence of yellow fever and plague in neighbouring places gave rise to considerable anxiety. Malarial fever continues to claim a large number of victims, and efforts are being made by legislative and other action to control the mosquito pest. Quinine is now sold at the district post-offices all over the colony at cost price, and its use is steadily increasing. In 1909-10 some 2076 ounces were thus sold. Steps were taken to procure this drug put up in chocolate with a view of increasing its consumption among the children, but this method has proved too expensive. The Medical Department continues to give attention to the question of ankylostomiasis, and the interest that has been aroused in this connexion among the employers of labour on the sugar estates and among the labourers themselves is bearing fruit.

There were a few sporadic cases of enteric and blackwater fevers, but, as usual, the principal causes of death were malarial fevers, diarrhœal diseases, and phthisis and other forms of tuberculosis. Professor Deycke's system of treatment of leprosy by "nastin" is being steadily followed at the leper asylums on the lines laid down by him. Several cases have so much improved that it is hoped they may shortly be discharged. There are five public hospitals in the principal centres of population, and the outlying districts are served by dispensary hospitals and dispensaries. The immigration law also requires the maintenance of hospitals on every plantation on which there are indentured East Indian labourers, and these institutions are available for the treatment of emergency and pauper cases from the general community. The daily average number of in-patients was 705. There were 18·90 deaths. Outdoor treatment was given to 74,646 persons.

An Ordinance has been passed which gives power to take special measures of precaution in case the colony is threatened with an invasion of a dangerous epidemic disease which the ordinary law is inadequate to deal with. The idea is to have the means of at once dealing with any dangerous disease which makes its appearance, instead of having to wait till the legislature can give the necessary special powers, and to avoid a delay during which the disease might make serious headway. It may be of interest to mention that an Ordinance has also been passed withdrawing all protection from carrion crows and permitting them to be killed like vermin in any part of the colony. Until lately they were thought to be useful as scavengers and were protected from destruction, it being an offence to kill them; but it is now agreed that they are dangerous as disseminators of disease by fouling water, and that any usefulness they possess is more than counterbalanced by the risk of spreading infection.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

WE shall publish this diary from time to time that our readers may have under their hands the dates of the approaching scientific Congresses. It is unnecessary to issue the lists of all these functions week by week, and we propose to make only such gatherings as will occur in the immediate future the subject of regular announcement. The following Congresses, Conferences, and Exhibitions are announced for March, and April, 1911:—

March 2nd-6th (Berlin).—Thirty-second Balneological Congress.
" 23rd (Paris).—First Congress of French Medical Journalists.
" 28th-April 25th (Tunis).—Exhibition of Hygiene.
April 4th-7th (London).—Fourth Annual Nursing and Midwifery Conference and Exhibition.
" 18th-20th (Paris).—Third Congress of Physiotherapy of French-speaking Physicians.
" 18th (Berlin).—Tenth Congress of the German Orthopædic Surgery Society.
" 19th-22nd (Berlin).—German Surgical Congress. (Fortieth Annual Meeting.)
" 19th-22nd (Wiesbaden).—Twenty-eighth German Congress of Internal Medicine.
" 20th-22nd (Groningen).—Thirteenth Nature and Medical Congress.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

FRIDAY.
GENERAL MEETING OF FELLOWS at 4.45 P.M.
Election of Candidates for Fellowship.

CLINICAL SECTION (Hon. Secretaries: A. Carless, J. Galloway) at 8 P.M.
Dr. Lediard (Carlisle): Benign (Bone) Cyst of Tibia.
Dr. James Collier and Mr. P. Lockhart Mummery: Tabes Dorsalis, with Very Early Rectal Crises.
Mr. R. J. Godlee: Two Unusual Cases of Disease of the Thyroid Gland.
Mr. Arthur Evans and Dr. C. H. Pring: Partial Removal of the Thyroid Gland in Graves's Disease.
Dr. Leonard Guthrie: Congenital, Hereditary, Familial Pes Cavus. And other Cases.
Mr. Arthur Evans: Report on the Subsequent History and Present Condition of a Case of Excision of the Larynx (shown Nov. 12th, 1909).

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—9 P.M., Lettsomian Lecture:—Mr. W. F. Haslam: A Review of the Operations for Stone in the Male Bladder. (Lecture III.)

HUNTERIAN SOCIETY, London Institution, Finsbury-circus, E.C.

WEDNESDAY.—8.30 P.M., Mr. J. Sherren: The Diagnosis of Gall Stones.—Dr. H. L. Tidy: Arsenic Poisoning.

OPHTHALMOLOGICAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

THURSDAY.—8 P.M., Card Specimens by Mr. Grimsdale, Mr. W. H. Brailey, and Mr. F. A. Juler. 8.30 P.M., Papers:—Dr. E. Griffith: Three Cases of Optic Nerve Tumour.—Mr. J. Taylor: A Morgagnian Cataract Operation; Remarks.—Mr. F. Thomas and Mr. G. Coats: A Peculiar Granuloma of the Retina.

CHILD STUDY SOCIETY, LONDON, 90, Buckingham-Palace-road, S.W.

THURSDAY.—7.30 P.M., Mr. S. Macpherson: Appreciative Music Study, its Application in the Training of the Child.

HARVEIAN SOCIETY OF LONDON, Stafford Rooms, Titchborne-street, Edgware-road, W.

THURSDAY.—8.30 P.M., Discussion on Colitis (opened by Dr. S. Phillips and Mr. D'Arcy Power).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY.—5 P.M., Prof. K. W. Goadby: The Association of Diseases of the Mouth with Rheumatoid Arthritis, and Certain Other Forms of Rheumatism.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY.—5 P.M., Dr. A. E. Boycott: Ankylostoma Infection (Milroy Lecture).

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, 9, Queen-street, Edinburgh.

MONDAY, WEDNESDAY, AND FRIDAY.—5 P.M., Dr. G. M. Robertson: Melancholia, the Depressive Phase of Manic-Depressive Insanity.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. S. E. Dore: Clinique (Skin). 5.15 P.M., Lecture:—Dr. G. Pernet: Pruritus.
TUESDAY.—4 P.M., Dr. G. A. Sutherland: Clinique (Medical). 5.15 P.M., Lecture:—Dr. A. Lieven (Aix-la-Chapelle): Treatment of Syphilis bearing on the Results obtained by Ehrlich's "606."
WEDNESDAY.—4 P.M., Mr. L. Cheatle: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. E. Wynter: Heart Disease in Middle Age.
THURSDAY.—4 P.M., Dr. A. Morison: Clinique (Medical). 5.15 P.M., Lecture:—Dr. H. S. French: The Vasomotor Factor in the Causation and Treatment of High Blood Pressure.
FRIDAY.—4 P.M., Dr. StClair Thomson: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Surgical Registrar: Demonstration of Cases in Wards. Dr. Simson: Diseases of Women. 12 noon: Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Dunn: Some Common Forms of Eye Disease and their Treatment.
TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11.30 A.M.: Mr. Etherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. R. Jones: Heredity and its Physical Bases.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Dr. Simson: Gynæcological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Simson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practical Medicine. (Lecture VI.)
THURSDAY.—10 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12.15 P.M., Lecture: Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. D. Robinson: Gynæcological or Obstetrical Section.
FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Pardoe: The Treatment of Acute and Chronic Urethritis.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.30 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 4.30 P.M., Special Lecture:—Mr. A. J. Walton: Intussusception.
WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.
THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4.30 P.M., Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.
FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 3.15 P.M., Special Lecture:—Mr. McGavin: Operative Treatment of Fractures (Baloptican Demonstration).
SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. E. Gillespie), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).
TUESDAY.—Clinic:—10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. Howell Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient: (Dr. A. J. Whiting). 4.30 P.M., Lecture:—Mr. H. Evans: Hæmorrhoids and their Treatment.
WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).
THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. E. Gillespie); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie). 4.30 P.M., Lecture:—Mr. R. P. Brooks: The Bacteriology of the Conjunctiva.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.

TUESDAY.—3.45 P.M., Lecture:—Mr. J. G. French: Pharynx and Naso-pharynx.
FRIDAY.—3.45 P.M., Dr. Abercrombie: Pharynx and Naso-pharynx.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. G. Stewart: Disseminated Sclerosis.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. H. Tooth: Progressive Muscular Atrophy.

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

TUESDAY.—5.15 P.M., Demonstration:—Mr. G. E. Waugh: Diseases of Joints—General Considerations of Joint Diseases, Injuries, Inflammation and its Varied Etiology, Hæmophilia, Scurvy. (Special Post-Graduate Course.)
THURSDAY.—4 P.M., Mr. Coats: Conjunctivitis in Children.
FRIDAY.—5.15 P.M., Demonstration:—Mr. G. E. Waugh: Diseases of Joints—Relationship of Diseases of Epiphyses, Bursæ, Tendon Sheaths to Joint Disease. (Special Post-Graduate Course.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.

WEDNESDAY.—4 P.M., Lecture:—Dr. D. Grant.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: The Limitation of the "606" Treatment.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

MONDAY.—5 P.M., General Meeting.
TUESDAY.—3 P.M., Mr. A. E. H. Tutton: Crystalline Structure—Mineral, Chemical, and Liquid. (Lecture II.)
FRIDAY.—9 P.M., Hon. C. A. Parsons: Recent Advances in Turbines.
SATURDAY.—3 P.M., Prof. Sir J. J. Thomson: Radiant Energy and Matter.

BRITISH MEDICAL BENEVOLENT FUND, Rooms of the Medical Society of London, 11, Chandos-street, Cavendish square, W.

MONDAY.—5 P.M., Annual General Meeting.

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Mr. E. S. Bishop: Prolapsus Uteri (Post-Graduate Clinic).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (8th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.20 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (9th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (10th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor. 9 A.M., Major, 2 P.M.).

SATURDAY (11th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.) Hospitals operations are performed daily.

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THE INDEX TO THE LANCET.

The Index and Title-page to Vol. II. of 1910 were given in THE LANCET of Dec. 31st, 1910.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 1st, 1911.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 23	29·62	S.W.	...	66	52	45	45	47	Cloudy
,, 24	29·64	W.	0·07	85	52	43	41	45	Cloudy
,, 25	29·62	S.W.	0·14	71	56	43	49	50	Cloudy
,, 26	29·84	W.	0·04	90	48	41	43	45	Cloudy
,, 27	30·05	S.W.	...	68	50	40	40	42	Raining
,, 28	29·66	S.W.	0·37	57	53	42	49	50	Overcast
Mar. 1	30·05	W.	0·16	87	52	39	39	40	Fine

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